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CONTENTS

Regular Articles

Debra F. Spidal	1	Physical processing of monographs by library technical services
Carolyn J. McCallum *Bobbie L. Collins*	10	Enhancing the information literacy classroom experience: A cataloger and a reference librarian team up to deliver library instruction
Shi-Jian Gao *Jin Xiu Guo* *Xiao-Ling Duan*	19	The study of library use and document gathering behavior: A survey of geomatics faculty at Wuhan University, China
Charles D. Bernholz *Laura K. Weakly* *Brian L. Pytlik Zillig* *Karin Dalziel*	29	American Indian Civil War treaties: The instruments formed by the Confederate States of America in Indian Territory
H. Anil Kumar *Mallikarjun Dora*	32	Citation analysis of doctoral dissertations at IIMA: A review of the local use of journals

Reviews

Mohamed Taher	40	Acquisitions in the Information Universe: Core Competencies and Ethical Practices
Mary F. Casserly	40	Developing an Outstanding Core Collection: A Guide for Libraries

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1464-9055(2011)35:1;1-P

Susan Hamburger	**41**	Functional Requirements for Authority Data: A Conceptual Model
Paolina Taglienti	**41**	Moving Your Library: Getting the Collection from Here to There
Rebecca L. Mugridge	**42**	Next-Gen Library Catalogs
Robert Alan	**42**	No Shelf Required: E-Books in Libraries

Library Collections, Acquisitions, & Technical Services 35 (2011) 1–9

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Physical processing of monographs by library technical services

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ABSTRACT

Physical processing consists of four components: circulation requirements, location markings, property markings, and security devices. This paper reviews the marking practices for circulating books from libraries responding to a survey posted to AutoCat and OCLC-Cat email lists.
The minimum physical processing tasks identified are as follows: one barcode placed on the front cover; institution name stamped in ink on the title page and at least one edge of the book; one spine label covered with a label protector; one self-adhesive date due slip affixed to the inside back cover; and a security device inserted in the book.
Responses are summarized and tabulated.

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1. Introduction

Technical services are the library operations concerned with the acquisition, cataloging, physical processing, and maintenance of library collections. The preparation of cataloged materials for use occurs in the physical processing area of technical services. Staff, student employees, or volunteers may perform physical processing under general supervision depending on the library type.

The primary function of the physical processing section is to prepare library materials for shelving and circulation. These tasks generally include circulation requirements, location markings (spine labels), ownership markings, and security stripping (Hahn, 1987). The tasks for processing different formats are generally the same although the specific methods and products may vary. This review of physical processing practices is limited to the preparation of monographic materials for the general circulating collection by in-house units.

In the current economic climate, libraries are looking for ways to do more with less. In many cases, libraries are simply trying to continue providing existing services with decreasing resources. The purpose of the survey was to identify those processes used by the majority of libraries as a reference point for assessing local practices.

2. Literature review

Many discussions of physical processing practices are included in general handbooks on technical services. Recent literature has focused primarily on physical processing of non-monographic formats (Driessen & Smyth, 1995; Englert, 2000). Some individual library procedure manuals are found on institution websites, although many are now hidden from public view by the use of intranets. This review does not include Web-based policies and procedures.

In the first edition of *Simple Library Cataloging*, Akers (1927) did not include instructions for the mechanical processes as she later referred to them. Akers suggested property stamping materials as soon as they are received, but she does not discuss labeling book spines or circulation requirements. The fourth edition of Akers (1954) was used as a textbook in library schools during the 1950s. It includes several pages under the chapter heading "Related Topics and Miscellaneous Information" on physical processing. These pages included a checklist that separated spine labeling from property stamping and date due slip pasting. Akers included a discussion of the pros and cons of accessioning library materials, a task since replaced by automated acquisitions systems. The

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Table 1
What type of marks do you use and where are they placed? Select as many as apply.

	Title page		Title page verso		Hidden page		Inside back cover		Edges (one or more)		
	No.	%	No.	%	No.	%	No.	%	No.	%	No.
Ink stamp	177	56.7	43	13.8	46	14.7	68	71.2	222	71.2	312
Printed label	20	23.3	8	9.3	0	0.0	45	52.3	24	27.9	86
Embossed stamp	10	66.7	1	6.7	4	26.7	0	0.0	1	6.7	15
Perforated embossed stamp	1	100.0	0	0.0	1	100.0	0	0.0	0	0.0	1
Institution name	155	61.3	28	11.1	36	14.2	47	18.6	170	67.2	253
Full address	56	65.1	16	18.6	6	7.0	23	26.7	21	24.4	86

same chapter in the 1984 edition has changed little except for the option of using printed self-adhesive labels for spine labeling. Applying book lacquer to protect the spine labels was recommended (Akers, Curley, & Varlejs, 1984).

Technical Services by Tauber (1954) is a classic text for technical services procedures. It was written primarily for research libraries and was meant to be a comprehensive overview of technical services processes. According to Tauber, the "use of the term *technical services*, or any one of its variants (*technical operations*, *technical activities*, or *technical processes*), is comparatively recent in library terminology" (p. 4). Physical processing is briefly discussed in the chapter on "Pre-Cataloging and Post-Cataloging Operations." Tauber states, "The use of ownership marks is controversial, not because any library believes that they can be abandoned, but rather because there is no universal agreement as to what ownership marks are effective or how they are to be applied" (p. 243). Tauber was reprinted several times between 1954 and 1971.

Piercy's *Commonsense Cataloging* (1965) was written for school libraries and small public libraries. She included a full chapter on the physical preparation of materials. The primary steps included ownership marking, spine lettering, applying plastic jackets, and special treatments. She stressed that leaning on the title page verso to write or stamp on it could weaken the spine. Perforated ownership marks had fallen out of favor presumably because of their destructive nature. Piercy recommended that books be stamped only once or twice on the outside edges, not on the inside. Stamping could be done pre-cataloging, as could inserting date due pockets or date due slips. Lettering or labeling the spine required waiting for classification of the book. Details about hand lettering of the spine were included. Piercy recommended combining the revision and shellacking step, saving one handling of the book. Revision was the term used for the reviewing and correcting of tasks performed in technical services to make sure each step in the process had been completed correctly.

The chapter on physical processing in the second edition of *Commonsense Cataloging* (Piercy & Sanner, 1974) is identical to the first edition. By the third edition, the chapter had been renamed "Behind the Workroom Door." The instructions for physical preparation of books had been reduced to a few lines indicating the "[m]aterial should be stamped both internally and externally in uniform positions. Label the call number on the spine, using self-adhesive labels" (p. 126–127) (Miller, Terwillegar, and Piercy, 1983). There is no mention of either physical or mechanical processing in the fourth edition of *Commonsense Cataloging* (Miller & Terwillegar, 1990).

In *A Technical Services Manual for Small Libraries*, Corbin (1971), Corbin recommended that a thin layer of plastic glue be applied over pressure-sensitive labels to hold them in place and to prevent smearing of the ink. Labels were still being hand-typed. The use of Se-Lin spine labels was included for both their legibility and their longevity. In the Se-Lin Labeling System, the call number was typed onto a strip of plastic and then automatically covered by a strip of clear tape. The labels were then cut apart, the backing was removed, and the label was ironed onto the spine.

The steps required for physical processing of library materials had changed little by 1971. Bloomberg and Evans in *Introduction to Technical Services for Library Technicians* (1971) still listed the basic steps involved as "a book will require an ownership stamp, book pocket and book card, date due slip, and lettering or labeling on the spine with the classification number. In some cases plastic book jackets are used" (p. 144). Bloomberg and Evans gave a few additional details about placement of marks and labels but were more concerned about the class of employee completing each step. The shellacking of labels was recommended to prevent fading and smearing. Shellacking labels may be similar to applying a thin layer of glue as mentioned by Corbin (1971).

In the 1976 edition of Bloomberg and Evans, the emphasis on processing had shifted to pre-cataloging steps. Bloomberg and Evans recommended that materials be property stamped as soon as the shipment was received by acquisitions to keep materials

Table 2
Do you use bookplates?

	No		Yes		No.
	No.	%	No.	%	
Ownership id	210	80.5	51	19.5	261
Gift id	68	19.9	274	80.1	342

Table 3
If you use barcodes for inventory and circulation purposes, what is the placement on the material?

	No.	%
Front cover	108	32.0
Inside front cover	44	13.1
Inside back cover	78	23.1
Back cover	100	29.7
N/A	7	2.1

from disappearing from the library. Once books were cataloged, the remainder of the physical processing could be completed (Bloomberg & Evans, 1976).

By the 2002 edition, Evans, Intner, and Weihs noted that self-adhesive labels are in use for call number labeling but may require the application of clear tape to keep them from falling off over time. Evans, Intner, and Weihs (2002) mention that barcodes are being used to provide a unique identifier for each item. Also, that date due slips had been replaced in at least one case by a stamped self-adhesive label being placed inside the book.

In her 1995 research paper, Factor (1995) noted, "Little guidance is given in today's general technical services or cataloging textbooks to assist librarians in making decisions as to how much physical processing is necessary and what procedures are actually helpful" (p. 1). Factor surveyed Ohio college libraries on current physical processing procedures for general circulating books receiving eleven responses. While there was no consensus on the right way to process books, she did determine the minimum steps required for circulation by these Ohio libraries. The steps included at least one ownership mark in an easily viewed location, one easily accessed barcode, a date due slip inserted in the book, and a spine label.

By 1995, the barcoding of books had become routine, as had the use of electronic security systems requiring a security device in each book. In addition, an increasing understanding of the need to preserve materials was influencing how materials were marked and the products used in physical processing.

Vann (1967) considered physical processing in a study of centralized processing centers. Several detailed workflows are provided as well as observations and recommendations for libraries considering centralized processing. These recommendations would be useful for any library reviewing their current practices or considering centralized physical processing. As listed by Vann they are:

1. Review the purpose, use, and value of each processing routine.
2. Eliminate those details which contribute only to the retention of conformity with the past.
3. Review circulation procedures and note what processing routines could be changed or eliminated.
4. Make a critical appraisal of processing services provided by the center in which you are considering membership. Should you become a member, accept the center's procedures without change.
5. If a new center is being formed, participate in determining procedures acceptable to all members (p. 120).

3. Methodology

The purpose of the survey was to identify common tasks performed by library physical processing units to prepare monographic materials for circulation and shelving. The survey was conducted using SurveyMonkey, a Web-based survey tool. The survey announcement was made via email on the AutoCat (AUTOCAT@LISTSERV.SYR.EDU) and OCLC-Cat (OCLC-CAT@OCLC.ORG) email lists. All library types were encouraged to respond. A request to forward the survey to the person primarily responsible for physical processing at each library was included. The questions were grouped into five broad areas: circulation and inventory requirements, location markings, ownership markings, protective treatments and security devices, and general demographic information. No identifying information was requested.

The purpose of the questions in each broad area was to determine the generally accepted practices rather than to identify unique practices. The following analysis will look at the responses to each question in more detail. Questions were multiple choice with a free-text option for libraries to provide additional information if desired. Responses were limited to the processing of monographic materials for the general circulating collection for comparison purposes. The survey was open from 3 February 2009 through 20 February 2009. Three hundred and sixty completed responses were received. Eight surveys were begun, but not completed. Not all respondents completed every question. Some questions allowed more than one answer therefore the total number of responses may be less than or greater than 360 (see Appendix A for Cover letter).

Table 4
If you use barcodes and they become damaged, how do you replace them?

	No.	%
Print duplicate	43	12.0
New barcode	303	84.6
N/A	12	3.4

Table 5
How do you record the date due?

	No.	%
Date due slip in book	97	27.0
Date due slip inserted at time of checkout	46	12.8
Print date due slip	134	37.3
No date due slip, patrons monitor record	39	10.9
Other	43	12.0

4. Survey analysis

The survey was divided into five broad areas: circulation and inventory labeling, location identification, ownership identification, protective and security treatments, and general information. Responses from 360 libraries were collected and analyzed. The responses were predominately from libraries located in the United States (n = 334), Canada (n = 12), New Zealand (n = 4), United Kingdom (n = 6), with an additional one each from Argentina, The Netherlands, Nigeria, and the Caribbean. The survey responses are summarized as follows:

- Library types: of the 360 libraries responding to the survey, 214 (59.4%) were academic libraries, 75 (20.8%) were public libraries, 38 (10.6%) were special libraries, and the remaining 33 (9.2%) were from Armed Forces libraries, government libraries, school libraries, and other (including special libraries and combined libraries fitting in more than one category).
- Circulation and inventory labeling: 108 (32.0%) libraries place the barcode on the front cover of the book while 100 (29.7%) libraries place the barcode on the back cover of the book. Only 43 (12.0%) libraries indicate that they duplicate damaged barcodes. One hundred thirty-four (37.3%) libraries print a date due slip at the time of checkout while 97 (27.0%) affix a date due slip in the book during processing.
- Location identification: 106 (29.4%) libraries use pin-fed computer printed spine labels and 196 (54.3%) libraries use sheet-fed computer printed spine labels. One hundred and five (29.2%) libraries will trim the label to fit a narrow spine. Eighty-two (45.3%) libraries record the call number on the title page verso.
- Ownership identification: 312 (92.0%) libraries use ink stamps and 253 (74.6%) libraries use the institution name for identification. One hundred and seventy-seven (56.7%) libraries ink stamp the title page and 222 (71.2%) ink stamp one or more edges of the book.
- Protective and security treatments: 130 (36.1%) libraries retain book jackets to protect the book. One hundred and seven (29.7%) libraries reinforce paperback books, with in-house treatments or commercial bindery, prior to circulation. Security devices are applied during processing by 258 (71.7%) libraries. Two hundred and seventy-six (92.9%) libraries apply protective treatments to the spine labels, usually label protectors or tape.
- General information: most physical processing steps are performed post-cataloging. Ninety-two libraries use a self-checkout system. Seventy (22.0%) libraries reported receiving some shelf-ready materials.

4.1. Ownership identification

Identification markings are made using an ink stamp by 312 (92.0%) libraries with the institution name used by 253 (74.6%) libraries. The title page was selected by 177 (56.7%) libraries as well as one or more edges by 222 (71.2%) libraries for ink stamping (see Table 1). The use of bookplates for identification is less common. Based on comments received, bookplates are generally used for material in special collections or material requiring special handling. The selective use of bookplates is common to identify gifts or special purchases made with endowed funds and memorial funds. Several respondents indicated that they are trying to avoid using bookplates (see Table 2).

Additional comments about identification practices included the use of printed labels (or ink stamps on generic white labels) when the page in the book was too dark to accept the ink stamp. Some libraries are moving away from stamping the hidden page. One library indicated that they have reduced markings on material, facilitating the donation of withdrawn materials. Some libraries included ownership marking on book pockets or security tags. One library used an ownership label to hide the radio-frequency identification (RFID) tag. In libraries, RFID technology can be used to combine the circulation and security requirements for physically processing materials.

Table 6
If you use a date due slip in the book, how is it affixed?

	No.	%
Glued in	14	4.9
Self-adhesive	115	40.2
N/A	157	54.9

Table 7
Assuming you use some type of spine label, how is it generated?

	No.	%
Hand written	1	0.3
Typewritten	13	3.6
Pin-fed computer printed	106	29.4
Sheet fed computer printed	196	54.3
Se-Lin	21	5.8
Other	24	6.6

The use of websites rather than physical addresses on ownership labels was mentioned. Members of library systems use the system information for identification with the option for branches or member libraries to add supplementary markings later. System member libraries mentioned including branch information labels adjacent to barcodes for ease in routing materials to the owning member.

4.2. Circulation and inventory requirements

The placement of barcodes may be influenced by the location of the date due slip or the use of self-checkout terminals. Leslie (1995) recommended that barcodes be placed on the upper left corner of the front cover. This label placement facilitates the use of self-checkout technology. It also works well for automated inventory projects where barcodes are scanned while on the shelf and compared to the database. The placement of barcodes is split between the front 108 (32.0%) and back 100 (29.7%) covers followed closely by the inside back cover 78 (23.1%) (see Table 3). Of the 92 libraries reporting the use of self-checkout systems, 34 (41.5%) placed the barcodes on the front cover and 30 (36.9%) placed the barcodes on the back cover.

Some libraries reported the usage of two barcodes with many variations on placement of the second barcode including the book pocket. Other libraries vary placement of the barcode when the cover material will not accept the barcode adhesive. One library placed the barcode on the circulation card but they are a special library providing around-the-clock access to materials. While there is no clear preference for placement, the trend seems to be moving toward either the front or the back outside cover of the material.

Damaged barcodes are usually replaced by inserting a new barcode 303 (84.6%) rather than printing a duplicate barcode 43 (12.0%) (see Table 4). While the preference is for replacing the damaged barcode with a new one, a few comments noted that both methods were used depending on the circumstances. These circumstances included the ability of staff to modify the records or the need to duplicate the barcode in the case of rare materials. In some instances, branch libraries used duplicating printers because branch staff were not authorized to modify the records. One library reported that the duplicated barcodes faded quickly.

The use of date due slips affixed in the book either during physical processing or at the circulation desk may be declining. Now that patrons can access their records online or receive email reminders, the need for a physical date due slip in the book seems redundant. Of the libraries responding to this question, 134 (37.3%) printed a date due receipt at the time of checkout and an additional 39 (10.9%) provided no date due slip (see Table 5).

Of those libraries affixing a date due slip in the book, 115 (89.1%) used self-adhesive slips. One option not provided in the survey was the use of adhesive stickers attached to the material in a variety of locations. Some libraries use a security device that is deactivated by an adhesive sticker that also serves as a date due sticker. Several libraries indicated that they stamped the date due on a permanent sticker on the cover or the last blank page of the book. There are still libraries using stamped cards in card pockets. Only 14 (4.9%) of the libraries reported using glue to affix date due slips in books. Most libraries still supply some form of written date due for the convenience of their patrons whether printed, stamped, or written at the time of checkout (see Table 6).

Based on comments, an additional 6.9% of libraries responded they insert a card or slip in a book pocket. The slip or card was handed to the patron at the time of checkout by 3.4% of the libraries. One library used a bookmark with the date due stamped on it. Again, some libraries use a stamped sticker to deactivate their security device.

A variety of comments were submitted for the circulation and inventory requirements section. A frequent comment was the use of a mix of practices over time. Libraries printing receipts usually print one receipt per patron rather than one per book. Self-checkout stations may have the option of printing a receipt. One library noted that they had moved the barcode to the outside of the book to facilitate inventory but still had to open the book to stamp the date due slip. Libraries in consortiums with mixed practices allow member libraries to add date due slips at the circulation desk when the lending library does not use date due slips.

Table 8
Do you trim spine labels to fit the spine?

	No.	%
No	226	62.8
Yes	105	29.2
Other	29	8.1

Table 9
If the spine is too narrow (whether you trim or not), where do you place the label?

	No.	%
On the front of item	312	86.9
On the back of item	4	1.1
On the front of the item oriented to text (back to front)	9	2.5
Other	34	9.5

Table 10
Do you include the location and call number elsewhere on the item?

	Pencil		Ink		Printed label		Total no.
	No.	%	No.	%	No.	%	
Title page	43	78.2	2	3.6	10	18.2	55
Title page verso	72	87.8	1	1.2	10	12.2	82
Card pocket	4	9.1	0	0.0	40	90.9	44

4.3. Location identification

Location identification, generally a spine label, is necessary to identify where the item will be shelved and later retrieved. Over 196 (50%) of library physical processing units responding are using sheet-fed self-adhesive computer printed labels. The survey responses did not support the assumption that most libraries use pin-fed labels allowing the printing of single labels. Approximately 106 (29%) of libraries responding use pin-fed printers for printing spine labels, half of which were academic libraries (see Table 7).

Comments about printing spine labels indicated that a mix of label types was used depending on the material and binding. A few libraries do not print labels during physical processing; instead, the cataloger prints the labels as they work. Approximately a dozen libraries mentioned using Zebra thermal printers rather than pin- or sheet-fed printers. A few libraries use hand-held label printers to produce spine labels.

Only 105 (29.2%) of responding libraries indicated that they trim the spine label to fit the width of the spine. Of the 29 (8.1%) libraries selecting *Other*, the predominant reason was they did not consistently trim labels to fit the spine. Trimming was only done if the label would obscure information or to allow a label protector to adhere better (see Table 8).

When asked where the label was placed when the spine was too narrow for even a trimmed label to fit, the overwhelming response was to place the spine label on the front of the item. Only nine (2.5%) considered the orientation of the text (printed back to front) when defining the front of the item. Fifteen (4.2%) libraries selecting *Other* said they always place the label on the spine. This is done by wrapping the label around the spine with at least part of the call number showing. An additional ten (2.8%) libraries indicated that they print the label so it can be placed horizontally on the spine with the call number running parallel to the spine (see Table 9).

Many libraries 181 (50.2%) continue to record the call number in a secondary location. Penciling the call number on the title page verso (39.8%) is still the most popular location and method (see Table 10). The purpose of the question was to determine whether libraries were still following this practice. An option should have been provided for N/A. Of the libraries selecting *Other*, 25 indicated that they no longer record the call number in a secondary location. An additional 75 libraries indicated that they record the call number in a different location than provided in the options, predominantly by using a second printed label. Locations varied from the front cover to the inside back cover; some even recorded the call number on an internal page in the text.

Of the 36 libraries providing additional comments on location labeling practices, the majority provided information about labeling other material formats or non-circulating materials they thought would be of interest. A few libraries indicated that they were trying to move away from writing call numbers in a secondary location. To quote one respondent, "People actually TRIM spine labels to fit the spine of a book? What an immense waste of time!"

4.4. Protective and security treatments

A significant percentage of libraries retain the book jacket for preservation purposes, 130 (36.1%) of all respondents, and 64 (26.2%) of academic libraries respectively (see Table 11). Libraries selecting *Other* mentioned a mix of practices based on book type

Table 11
Do you keep dust jackets on books as a preservation process (as opposed to marketing or appeal of cover)?

	No.	%
No	193	53.6
Yes	130	36.1
Other	37	10.3

Table 12
Do you reinforce paperback books before circulating, either in-house treatments or commercial bindery?

	No.	%
No	141	39.2
Yes	107	29.7
Selectively	94	26.1
Other	18	5.0

Table 13
Do you security strip or tattle-tape material during physical processing?

	No.	%
No	50	13.9
Yes	258	71.7
Selectively	17	4.7
N/A	14	3.9
Other	21	5.8

and shelving location. The most frequent comment was book jackets are retained for both appeal and for the additional information provided on the jacket rather than for protection. Reinforcement of paperback books is split between "no" 141 (39.2%), "yes" 107 (29.7%), and "selectively" 94 (26.1%) (see Table 12). Respondents selecting *Other* did so because only the spine of the paperback was reinforced with tape rather than the entire book.

Security systems are commonly used. Tattle-tape security strips or another type of security device was used by 258 (71.7%) of respondents. Seven libraries indicated that they use RFID tags. Several respondents indicated that the security strips were added either during receiving or at the circulation desk, not during physical processing. Only a small percentage indicated N/A for no security system. One library said they hope to procure a grant to install a security system soon (see Table 13).

In general, barcodes do not receive protective treatments such as label covers. This is interesting when one considers the percentage of libraries applying the barcode to the outside front or back cover. The most common protective treatment for spine labels is tape, followed by the use of label protectors (see Table 14). The responses under *Other* show a misuse of terminology on the part of the investigator in that the term Label Lock is a trademarked name. If the generic term label protector or label cover were used the responses under Label Locks might have been higher.

Comments included additional information about processing of media and non-circulating material. One library indicated that they no longer retain dust jackets since Hurricane Katrina but did not say why. The other comments expressed confusion over the use of the term Label Lock as mentioned above.

4.5. General information

The following questions were asked to identify the type and location of libraries responding. Additional questions about workflow in physical processing units were included.

The types of libraries responding were academic 214 (59.4%), armed forces 1 (0.3%), government 13 (3.6%), public 75 (20.8%), school five (1.4%), and special 38 (10.6%) (see Table 15). Libraries selecting *Other* 14 (3.9%) indicated that they are dual purpose libraries fitting in more than one category. These libraries would be categorized as special or academic. Respondents were overwhelmingly located in the United States 334 (92.8%) with additional survey participants from Canada, New Zealand, the United Kingdom, Argentina, The Netherlands, Nigeria, and the Caribbean (see Table 16).

Most physical processing at the responding institutions occurs post-cataloging. Twenty-two percent of responding libraries are receiving material either partially processed or cataloged prior to receipt. Barcoding was frequently done prior to cataloging. Some libraries completed all processes during cataloging which may indicate that they do not have separate processing units (see Table 17).

Table 14
Do you apply protective treatments to labels or markings?

	Label Locks		Tape		Glue		N/A		No.
	No.	%	No.	%	No.	%	No.	%	
Barcodes	34	23.0	47	31.8	0	0.0	68	45.9	148
Spine labels	104	35.0	166	55.9	6	2.0	27	9.1	297
Other									74

Table 15
Library types.

	No.	%
Academic	214	59.4
Armed forces	1	0.3
Government	13	3.6
Public	75	20.8
School	5	1.4
Special	38	10.6
Other	14	3.9

Table 16
Library location by country.

	No.	%
Canada	12	3.3
New Zealand	4	1.1
United Kingdom	6	1.7
United States	334	92.8
Other	4	1.1

The use of RFID tagging, self-checkout systems, and shelf-ready materials will all have an impact on how material is processed by the physical processing unit (see Table 18). Comments show an interest in all of these processes. One library indicated that shelf-ready materials still required additional processing before the books were ready to shelve. The use of shelf-ready materials by different library types is a possible topic for further study.

An opportunity was provided at the end of the survey to supply additional information the respondent felt would be relevant. Additional information about non-circulating and non-monographic material processing was provided. There were also comments addressing the cost of shelf-ready and pre-cataloged material. Most felt these services were performed faster and less expensively in house although their administrations were pushing technical services to implement one or both through vendors. The use of volunteers or student workers to perform physical processing is quite common and one way of reducing the cost per item.

5. Conclusion

The comments show that many libraries are looking for ways to reduce and streamline physical processing without sacrificing a quality product. It is hoped that the results of this survey will help libraries when making decisions about what is necessary and what may be discontinued. Local needs vary, but it never hurts to ask why the processes are being performed. Does it still make sense in the current environment?

Based on the responses to this survey, the minimal accepted physical processing steps required for circulation and inventory appear to be:

- institution name stamped on the title page and one book edge;
- one barcode placed on the front cover;
- self-adhesive date due slip affixed in the book;
- spine label (untrimmed) on the spine when possible, or the front cover when the spine is too narrow, covered by a label protector;
- call number penciled on the title page verso; and
- security device applied to the book.

Table 17
Based on the categories used in the previous questions, which processes do you generally perform before cataloging or after cataloging?

	Pre-cataloging		Post-cataloging		N/A		No.
	No.	%	No.	%	No.	%	
Ownership marking	99	28.0	255	72.0	3	0.8	354
Circulation requirements	68	20.2	222	66.1	46	13.7	336
Location identification	89	26.0	245	71.6	11	3.2	342
Protective treatments	48	13.8	276	79.1	30	8.6	349
Security treatments	68	20.0	228	67.1	46	13.5	340

Table 18
Do you use any of the following in your library?

	No		Yes		No.
	No.	%	No.	%	
RFID tags	286	90.5	30	9.5	316
Self-checkout system	242	72.5	92	27.5	334
Shelf-ready material	248	78.0	70	22.0	318
Other					20

While the purpose of the survey was to identify physical processing based on actual practices, recommendations for specific label placement, products, or methods are beyond the scope of this article.

Appendix A

Cover email:

You are invited to participate in a survey of current physical processing practices. The survey is intended for library employees who directly supervise or participate in the physical preparation of library materials for circulation. The survey is being distributed to several cataloging related email lists. Please take a few minutes to complete this survey or forward it to the appropriate person at your institution.

The purpose of this study is to identify current physical processing practices of books for the general circulating collection. Physical processing may also be referred to as marking or end processing and it may be pre- or post-cataloging. The use of RFID tags for inventory and circulation, the increased use of self-checkout systems, and the acquisition of shelf-ready materials has raised the question of what physical processing practices are still practiced by most libraries.

The survey consists of five sections: ownership identification, circulation and inventory labeling, location identification, protective and security treatments, and general information. The questions refer only to physical processing of books intended for the general circulating collection.

Responding to the survey is voluntary. No identifying information is being requested. Any personal information provided in the comments sections will remain confidential. Information will be analyzed and reported as tabulated data or percentages. The results of the survey will be used as comparative data for assessing local marking practices and shared with the library community through publication.

The survey will remain open until Friday February 20, 2009. It should take approximately 15 minutes to complete. Any questions may be directed to Debra Spidal, Cataloging Librarian and Marking Supervisor, Washington State University, Pullman, Washington. email:dspidal@wsu.edu.

(URL for survey) signature block.

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Enhancing the information literacy classroom experience: A cataloger and a reference librarian team up to deliver library instruction

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ABSTRACT

This article examines the collaborative teaching approaches between a cataloger and reference librarian. It discusses the role of instruction in liaison and collection development work, skills required to teach information literacy classes, and reviews case studies that inform the question of what skills and roles these two fields of librarianship contribute to information literacy instruction. Case studies describe the cooperative teaching partnership, examine each librarian's contribution to the collaborative effort, and discuss the benefits of partnering with other colleagues. Moreover, this study suggests liaison duties that include collection development responsibilities are enhanced by participating in instructional activities for assigned academic departments.

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1. Introduction

Liaison librarians are constantly looking for ways to build and sustain successful partnerships with teaching faculty. In order to offer a full range of services to their liaison departments, some librarians are assuming additional responsibilities and developing new skills to provide outreach services. As liaison librarians market services to their assigned departments, they must also assess their current skill set to ensure that they have the background and knowledge to offer quality services.

Instruction in the form of information literacy classes and personal research sessions (PRS) are important aspects of liaison work. Teaching skills in these types of classes however often involve a wide range of skills that can be difficult for one librarian to hold. This case study explores how collaboration with librarians in other areas of the library can lead to more holistic approaches to these teaching opportunities. The focus of the case study is a coteaching collaboration between a cataloger and a reference librarian that included library instructional sessions for anthropology students at Wake Forest University and an information literacy (IL) course. This article describes their collaborative efforts, addresses the contributions of each librarian in this cross-team partnership, and offers tips to other librarians who are interested in initiating similar cooperative teaching activities at their institutions. Moreover, this case study addresses several key questions regarding the impact of IL on other library functions such as cataloging and collection management. Specifically, it will focus on these questions: (1) What is the relationship between IL, collection management, and cataloging? (2) What impact does teaching have on a liaison's ability to effectively select and manage the library's collection for an assigned academic department? (3) What expertise and knowledge can a cataloger bring to a library instructional setting?

2. Reasons for initiating the collaborative adventure

During 2007–2009, several major events occurred at the Z. Smith Reynolds Library, which prompted the Cataloging Librarian for Nonprint Materials and the liaison to the Anthropology Department to seek a collaboration with the Social Sciences Reference

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Librarian who also coordinates library instruction at Wake Forest University. The first event involved the newly hired Director of Resource Services sharing her vision of what liaisons' primary responsibilities entailed. During the June 17, 2008, liaisons' meeting, she noted that these responsibilities include teaching, consulting with faculty and students, and collection development. By teaching, the Director of Resource Services meant library instruction for discipline specific courses taught by university faculty and personal research sessions with students. Prior to this specific meeting, library instructional and personal research sessions with students were primarily provided by reference librarians.

Even before the new Director of Resources Services arrived at Wake Forest, the idea of redefining the liaison program was being considered. The Dean of the Library and the Director of Research, Instruction & Technology Services (RITS) were discussing how the liaison program could be expanded and enriched if all the liaisons worked with their respective departmental faculty in the area of teaching library instruction. By teaching classes in subject-specific areas for faculty, liaisons could develop closer working relationships with their respective academic departments while at the same time learning specifically what topics were being taught, studied and researched in the classes. Having this knowledge would enable the liaisons to become more proficient at selecting appropriate materials to add to the library's collection. The Dean's ultimate goal was for liaisons to become the primary selectors of library materials for their respective departments. The transition for this shift in responsibility would occur over a three year period, and would allow faculty to focus on their teaching and bring Wake Forest University into alignment with the norm in academia.

The second event to prompt the cataloger to collaborate with an experienced instructional librarian started as an initiative in 2007 to explore academic status for librarians. As the cataloger attended the meetings discussing academic status, she realized that teaching would become a new competency for her to master. On July 1, 2009, librarians at the Z. Smith Reynolds Library were granted faculty status. This new academic model requires librarians to assume more professional responsibilities such as teaching, scholarship, and service activities.

There is precedent for asking librarians to adopt new roles that are historically outside of their area of primary responsibility, and "it is not at all unusual for a librarian's job specifications or title to change significantly" (Coker, van Duinkerken & Bales, 2010) in an academic setting. The current economic situation may force librarians to assume additional responsibilities as universities struggle with tighter budgets and possible staff reductions. If "an economic downturn for an institution increases the necessity to employ personnel who have an even wider range of abilities and skills," (Durán, Garcia & Houdyshell, 2009) then the prudent course of action for employees is to take a close look at their current professional qualifications and take the initiative to retrain and update job skills in order to stay competitive in the workplace. Furthermore, the current recession may motivate employees to find new ways to develop themselves. As Geoff Colvin (2009), a business journalist, notes "the great thing about a financial crisis and a recession is that they offer everyone the opportunity to be stretched in their current jobs."

All of these new expectations provided the impetus for the cataloger to examine the role of instruction in her liaison work. The cataloger has served as the library liaison for the Anthropology Department for the last 10 years. Although she suggested possible library purchases, distributed library budget information, and helped them to secure additional funding through the years, she was not actively involved in teaching library literacy classes for the faculty in the department. Adding teaching to the list of liaison work was both a good way to build additional connections to the department and to build collaborative ties with librarians in other areas of the library.

3. Learning how to teach

It is interesting to note that as graduates of ALA accredited library and information studies (LIS) programs neither the reference librarian nor the cataloger took a user-education course in library school. Historically, LIS programs have not included library instruction credit courses. In 2009, Mbabu points out "for the first time, three programs are offering IL as distinctive separate courses alongside other instructional courses" (Mbabu, 2009). Through the years, concern has been expressed from new librarians, employers, and several library organizations about the value of including courses that prepare librarians to teach. In a recent study, Click and Walker (2010) report on their findings regarding new librarians and library administrators' perspectives on training for new instruction librarians. It is interesting to note that both new librarians and library administrators agreed that "LIS programs were not adequately preparing librarians to teach." In fact, in this same article, Click and Walker report that new librarians believe that instruction courses offered in a LIS program are "valuable" in preparing librarians to teach. From the administrators' viewpoint, the ability to develop a lesson is an important teaching strategy for new librarians to master (Click & Walker, 2010).

In January 2009, the American Library Association Council approved and adopted as policy the ALA's Core Competences in Librarianship which "defines the basic knowledge to be possessed by all persons graduating from an ALA-accredited master's program in library and information studies" (American Library Association, 01/27/2009). Devised by the Special Library Education Task Force, number seven of the eight listed core competences is Continuing Education and Lifelong Learning. In points 7C and 7D of this particular competency, individuals should be familiar with and able to utilize "learning theories, instructional methods, and achievement measures; and their application in libraries and other information agencies" and the "principles related to the teaching and learning of concepts, processes and skills used in seeking, evaluating, and using recorded knowledge and information" (American Library Association, 01/27/2009).

Beginning academic librarians acknowledge that they are not adequately prepared for their instructional duties. The library literature on this topic offers numerous examples of beginning librarians describing their personal teaching experiences. Garnar (2001) points out that he was not adequately prepared to teach IL classes, while Booth (2010) states that she approached her teaching responsibilities "with nothing but terror in [her] heart." Thus, the transition from graduate school to the real world is

unnerving for many new hires. Once employed, the business of "developing instructional skills in staff is left to employer-provided training or to the personal initiative of staff" (Julien, 2005).

4. Adopting instructional roles

While new hires often receive on-the-job training in user instruction when they first arrive, this may not be the case for other librarians who have been employed for a longer period of time. For example, the initial job description of the Cataloging Librarian for Nonprint Materials, who was hired in 1999, did not include teaching as a job-related duty. While in library school the cataloger took the required reference classes, but soon realized that she saw herself as more of a person working behind the scenes. Prospective librarians, who prefer less direct contact with the public, often select a career in a technical services department over reference or another public service position.

Librarians employed in technical services may not want to step out of their comfort zone to assume teaching responsibilities. When asked to assist with a tour or teach, some catalogers decline the offer saying that they are not "good teachers," have not been trained to do library instruction, feel uncomfortable talking to an audience and do not have time to prepare for a class. Based on this feedback, coordinators of library instructional programs sometimes fail to include technical services personnel when they develop IL programs. However, this decision is unfortunate, because there are "valuable human resources to be found in technical services departments, most of which remain untapped" (Hristov, 2005).

While it is true that some catalogers are reluctant to step into a classroom for a variety of reasons as noted above, it is interesting to note that a few catalogers took a giant leap into the unknown world of public services by "breaking out of the basement" (Martin, 1995) and teaching classes as far back as the 1880s. Writing in 1984, McBride acknowledged that with the advances in technology, libraries were reorganizing technical services departments and catalogers were being reassigned new responsibilities in other parts of the library (McBride, 1984). Eskoz (1991) has argued that some catalogers are becoming more knowledgeable about areas beyond their traditional job descriptions including participating in activities that were once considered public service duties. She also noted that with a changing job focus and new challenges in the workplace that a cataloger could evolve into a "Renaissance librarian" (Eskoz, 1991). In recent years, there have been numerous articles indicating that "fewer and fewer librarians can claim to be strictly catalogers" (Folsom, 2000). In fact, many catalogers' positions have changed through the years to include more liaison responsibilities with academic departments including collection development activities, reference, and teaching responsibilities (Banush, 2008; Mugridge, 2008).

As noted, catalogers are assuming more teaching responsibilities. The library literature is replete with discussions about the benefits of catalogers and reference librarians collaborating together to teach IL classes. There are a number of models described in the literature that provide guidance to librarians who are interested in collaborating with librarians in other departments or teams in developing and teaching IL classes. For example, Sutherland and Adams (2004) described a team-teaching approach that was used at the University of Tennessee Chattanooga's Lupton Library to provide library instruction to students and faculty in the music department. Librarians from audiovisual resources, cataloging, and reference participated in the seminar. Sutherland and Adams concluded that interdepartmental cooperation fosters good will and better working relationships between departments, and "rumors of war and territorial tensions diminish when people actively work together to understand and support each other" (Sutherland & Adams, 2004). In short, librarians are reaching out to other colleagues, breaking down barriers, and building effective partnerships to enhance services to library users.

5. Forming the partnership

The idea of assuming more of an active role in teaching became more of an urgent need in late summer of 2008 when the cataloger met with a professor in the Anthropology Department. The purpose of the meeting was to discuss the faculty member's research interests, the classes he taught, and his satisfaction with resources in the library's anthropology collection. Liaison duties (i.e. teaching, consulting with faculty, and collection development) were outlined as well. At that point, the professor expressed an interest in having the cataloger/liaison meet with his upper-division class.

When posed with this instructional challenge, the cataloger found herself asking these questions: Where do I begin? How does a seasoned cataloger go about gaining teaching experience? What resources are available? Beginning in 1999 as a new hire, the cataloger was immediately tapped to give library tours to incoming freshmen. To aid her with describing library services and resources, a script was provided. A few years after the IL program had been in place at Wake Forest University, the cataloger began sitting in on and observing several colleagues' general IL classes. In fall 2006, she became a permanent assistant in one of the general IL credit courses. Her duties included taking attendance, emailing students, and grading. When it came time to discuss Library of Congress' classification system and subject headings, she briefly lectured on this topic as it was something she felt comfortable doing. But merely observing as an assistant as opposed to instructing students regularly are two different things. It would require a lot of courage and the thought of doing it solo for the first time was daunting. In order to turn her skills in liaison and cataloging work into instructional opportunities, the cataloger decided that the best strategy would be to partner with a reference librarian. Following the conversation with the anthropology faculty member, the cataloger contacted the Social Sciences Reference Librarian to ask her for assistance with the professor's library instruction request for his anthropology class.

The idea of assisting the cataloger in planning, designing, and coteaching the IL class appealed to the reference librarian. The collaboration was viewed as an excellent opportunity to explore the challenges of teaching undergraduates at the university level.

Moreover, the reference librarian remembered that as a new professional she had been mentored by several excellent librarians who guided her, provided advice, and offered words of encouragement that helped to establish her career path.

6. Breaking down the teaching process and assigning responsibilities

Once the partnership was formed, the reference librarian and the cataloger met to discuss their very first collaborative IL class. In a follow up email, the professor requested a 30 min session for his upper-division anthropology class. During the session, he wanted each librarian to introduce herself and describe her role in the library. Librarians were to explain how students could connect a social issue (e.g. homelessness) with academic scholarship from an anthropological viewpoint using books, databases, and journals. He also did not want a live demo of the online catalog or the electronic databases. As part of the instructional session, librarians were to explain the personal research session service and invite his students to make an appointment to discuss their individual research paper topics.

During the first planning session, the librarians discussed how they would present information to this class. The reference librarian had a handout which outlined the steps of the research process that she used in library instructional classes that she taught. Using the handout, the two developed a lesson plan and determined teaching responsibilities. Due to a lack of experience in searching online subject specific databases, the cataloger felt comfortable teaching the beginning steps of research (i.e. finding background information, selecting keywords, using bibliographies, searching the online catalog for books, and requesting materials via interlibrary loan). The reference librarian would cover: choosing and searching online subject databases; developing effective search strategies using keywords, Boolean operators and truncation; and locating scholarly journal articles.

7. Cataloger's contributions to the library instructional sessions

So far this case study has predominantly focused on skills such as planning, organizing, teaching IL classes and conducting personal research sessions with students. The following case studies emphasize areas where the cataloger's skill sets were useful in teaching key information literacy concepts and skills. These skills can be grouped into three broad areas: subject and call number composition, searching and browsing in a faceted online catalog (Vufind), and identification of search strategies based on the research topic. For example, searching and browsing in our current generation of faceted discovery systems can be more difficult than in traditional catalogs. The cataloger is positioned to explain how subject headings have been broken into discrete facets, identify when it is appropriate to use faceted vs. traditional discovery systems or explain the meaning of syndetic structures with a high level of background knowledge. Further, the cataloger's knowledge about MARC fields, Library of Congress (LC) subject headings and call numbers provided much content for elaboration with student researchers. Showing where information components of a cataloging record display in the online catalog and explaining their importance to the research process are essential concepts that researchers must understand to locate relevant resources in a library's collection. The specific case study examples described below examine how the cataloger approached instruction in a number of different contexts including one-shot instruction classes, personal research sessions, and credit bearing information literacy courses.

7.1. One-shot instruction classes for freshmen

For a freshmen First Year Seminar (FYS) class on ancient archeological sites and civilizations, the cataloger demonstrated a basic search in all fields using the keywords "Nazca Lines". Of the eight titles retrieved, four contained the keyword "Nazca", two contained a variant spelling of the keyword, "Nasca", and the remaining two titles contained neither spelling of the keyword. Three of the eight titles contained both keywords "Nazca Lines" while one contained both with the variant spelling. After pointing out these differences in search results, the cataloger explained how and why these titles appeared in the results list.

Looking first at a result that contained both keywords "Nazca Lines", the cataloger clicked on the hyperlinked title and immediately pointed out three key pieces of information regarding the title: location in the library, its availability (i.e. checked in or out, missing/lost, etc.) and the LC call number. With all three pieces of information and notwithstanding a checked out, missing/lost or mishelved book, one should be able to locate a title in the stacks without much difficulty. Once located, she reminded students to look to the right and to the left of the found book, because other titles on the same topic are often nearby on the same shelf. In a nutshell, she proceeded to explain exactly what catalogers do (i.e. describe materials using subject headings, assign call numbers, and group like materials together). Hence the reason one may see multiple titles in the stacks that have the same call number prefix which necessitates having the entire call number when searching for a book in the stacks.

The concept of utilizing a controlled vocabulary such as LC subject headings to describe people, places, things and ideas was discussed in class by the cataloger. The authoritative LC subject heading for our "Nazca Lines" keyword search is "Nazca Lines Site (Peru)". This subject heading was present in the cataloging records of the two titles containing the variant spelling "Nasca" and in one record where neither "Nazca" nor "Nasca" appears in the title. It was explained that this is the reason why these three titles were retrieved in the original "Nazca Lines" keyword search.

Authoritative LC headings can be used to conduct subject searches within a catalog, which differs from keyword searching, and may retrieve fewer, more or the same number of results. Students were cautioned that in order to do effective subject searching, current, authoritative LC subject headings must be used and to be aware that there are differences in subject headings' meanings, particularly for words which are used interchangeably on a regular basis. The cataloger demonstrated an example of this concept in another FYS on Western converts to Islam by doing a subject search for "African Americans". She prefaced her explanation by

saying that it is not uncommon for individuals especially in the United States to use the terms "African Americans" and "Blacks" interchangeably without any differentiation in meaning, but the LC does differentiate between the two terms. By looking at the scope note included beside of the subject heading "African Americans", one learns that the said term is used for "works on citizens of the United States of black African descent." Whereas, "works on blacks who temporarily reside in the United States, such as aliens, students from abroad, etc." utilize the subject heading "Blacks—United States".

Another point made concerning keyword searching was there are instances where a retrieved result does not include the keyword(s) either in the title or in a subject heading. This should not be viewed as a mistake in the catalog. These days, many cataloging agencies such as the LC are including table of contents and/or summary notes in their MARC records. This information is viewable in online catalogs, but researchers may be unaware of their inclusion in a record until a librarian points it out to them. One of the two titles used in the "Nazca Lines" keyword search had neither keyword in the title or in the subject headings, but included in the cataloging record was a tab for table of contents and in the list of chapters there was one titled "Interpreting the Nazca Lines".

7.2. Personal Research Sessions (PRS)

As mentioned earlier, consultation with students is one of the responsibilities of a liaison at Wake Forest University. Personal research sessions allow the cataloger to actually meet with students one-on-one to discuss their research topics and to assist in locating scholarly resources for their papers and projects. Before meeting with a student, the cataloger knows the topic in advance due to receiving an online personal research session request forwarded by the Reference staff in which the student describes their chosen topic and lists resources used so far (i.e. catalog, databases, etc.) or through email correspondence with a student.

To prepare for the personal research session, the cataloger conducts some preliminary research of her own to determine what resources the library has on the student's topic. LC subject headings are also checked to ascertain the most current, authoritative descriptors in use. Knowledge of appropriate subject headings used for any given topic allows the cataloger to demonstrate how to conduct effective subject searches in the catalog, which may not have occurred to a student to perform. With the development of online catalogs and the demise of card catalogs, keyword searching is the most popular search performed by patrons as opposed to searching by subject. Suggesting to students to perform both types of searches may or may not retrieve results that are useful and relevant, but it will guarantee a more thorough search of their topic in the online catalog.

On two occasions the cataloger conducted personal research sessions with students whose topic was hijras, men in South Asian culture who assume the gender identity, roles and dress of women. Often they are referred to as a third sex. LC does not have a subject heading for this group of individuals. After doing a keyword search for hijras and locating cataloging records for several titles where the term was located in the table of contents field as opposed to the title itself, the cataloger suggested performing searches using the LC subject headings (i.e. Transvestism, Transvestites, and Hermaphroditism) that were seen in the cataloging records to determine if there were other titles in the collection that potentially contained content on her topic. It was brought to the student's attention that once she located the "hijra" books, she should look at other books nearby on the shelf and check their table of contents and indexes for that term.

These one-on-one sessions also provide opportunities for the cataloger to observe how students utilize the online catalog in searching and their understanding and manipulation of data contained in cataloging records. Catalogers, who work with students, learn firsthand how individual students approach doing research, their abilities in constructing effective keyword searches, and their knowledge of information components contained within cataloging records. In some online catalogs, once a student clicks on a title in a list of retrieved results for more information, a brief view of the cataloging record is what is displayed first to the student. A brief view often displays author, title, publishing details, subject headings, book location, call number and status availability, all are very important information, but often there is other information that could be as valuable to students if they only realized its inclusion in a cataloging record or realized it but bypassed it altogether. For example, VuFind, an open source catalog used in Wake Forest's undergraduate library, has what looks like individual index tabs in its cataloging records which display information about specific features of a title. The "description" tab includes information on number of pages, illustrations if available, bibliography and index. For some more recently published titles, catalogers have started to include a brief summary about a book's content as well as table of contents; this information, if available is included on the "description" tab and "table of contents" tab in VuFind. For newer fiction books, VuFind may contain Library of Congress contributed hyperlinked enhancements such as a publisher's description of the book and/or a sample of a book's text provided by the publisher. Catalogers can also demonstrate how to do a search within an open cataloging record using the hyperlinked information components of author, title, series, and subject headings. When instructing students about the online catalog, catalogers can point out these information components contained in cataloging records thereby demonstrating a catalog's powerful capabilities of search and discovery. Added benefits for catalogers/liaisons who conduct these personal research sessions with students include developing good reference interview skills and an acute awareness of the library's collection in a discipline as well as fostering subject familiarization of the academic discipline to which they liaise.

7.3. Coteaching credit classes

In fall 2008 and spring 2009, the cataloger and reference librarian along with another reference staff member cotaught a one-hour credit course. LIB210 Social Science Research Sources and Strategies is a half-semester course, which provides students with an understanding of the sources and strategies necessary for doing research in the social sciences (i.e. anthropology,

communication, economics, education, political science, psychology and sociology). Topics covered include strategies for developing research projects, resources available in each discipline, locating information, interpreting search results, and evaluating sources.

Another partnering opportunity surfaced for the cataloger and the reference librarian in the spring of 2010 as they became coinstructors for this course. During fall 2009, the two librarians were busy planning the course and deciding how to divide up the classes. The cataloger taught classes on finding context for one's research (i.e. locating background information), the use of U.S. government documents in the social sciences, and utilizing gray literature and citations found in bibliographies to further one's research. For locating encyclopedias and government documents in both print and electronic formats in the online catalog, the cataloger demonstrated how by performing a keyword search on a topic and then narrowing the search for these specific materials by utilizing VuFind's "location" facet feature.

7.4. One-shot instruction classes for upper classmen

The cataloger cotaught with the reference librarian a one shot library instruction class to an upper level Anthropology class on ethnographic methods. The professor instructed her ten students to email their topics in advance to the cataloger, so that she and the reference librarian could structure their searches in the catalog and databases using keywords based on the students' topic. Eight emailed their topics in advance to the cataloger. Because the class was small and the students were upper-level classmen, the librarians decided to conduct the session like a workshop instead of a full-fledged lecture. Specific resources and search demonstrations of the online catalog and databases were limited to the first twenty minutes of class. The last thirty minutes, students worked on exercises designed to help them locate resources for their specific topic. The librarians mingled amongst the students and were available for assistance and questions. For the eight topics submitted, the cataloger created a customized guide listing selected resources for those students that included the following: instructions on basic and advanced catalog searching, LC subject headings relevant to the student's topic, information on WorldCat and the library's Interlibrary Loan service, recommended subject-specific encyclopedias and databases, database searching tips, and instructions on locating journals in the library. The cataloger also included a few journal articles and books found in the library's collection on a student's topic, call number ranges to use for locating books in the stacks, as well as suggested books to request through Interlibrary Loan.

8. Evaluating the collaborative experience

As the senior partner in the relationship, the reference librarian provided constructive feedback on the cataloger's presentations. Prior to the first instructional session, the cataloger went over her part of the presentation with the reference librarian enabling the reference librarian to offer suggestions on the content (i.e. reminding the cataloger to include a certain concept), and delivery. From past experience, the reference librarian knew that the cataloger just needed to be thrown into various teaching situations so that the cataloger could build her confidence in speaking to groups. After seeing the cataloger becoming more proficient in delivering information to groups and one-on-one with students, the reference librarian felt she played a small part in helping the cataloger to succeed.

After each teaching session, the cataloger and reference librarian took a few moments to evaluate their experience. Did the instructors leave out any information? How did the students and the professor respond to the presentation? Were there things that the instructors could do differently the next time? The team also used this information in planning other IL classes.

As the mentee in the relationship, the cataloger developed skills and confidence in her teaching and was able to comfortably offer teaching as a service to the anthropology faculty with whom she liaises. She also experienced an excellent mentor/mentee relationship. In addition to learning how to develop a lesson plan, she simultaneously observed mentoring skills that will be modeled should she be presented with future mentoring opportunities.

9. Receiving feedback from students

To assess the effectiveness of our personal research sessions and library instructional sessions, short evaluations were developed and distributed by email to each professor. Several students responded that the sessions brought to their attention new databases and topic specific resources with which they were previously unfamiliar and knowledge on how to effectively navigate the library's website, its databases and online catalog. A couple appreciated that we customized our catalog and database search examples with keywords pertaining to their classes' specific research topics. Demonstrating specific types of database searches and how to effectively use truncation symbols to retrieve results for all possible keyword derivations were other positive comments received in the evaluations.

The authors also solicited suggestions from the students on how the session could be improved. Although print handouts were provided on the day of class, students expressed a desire for ones that are more detailed and online. Using Springshare's LibGuides software, the authors created an online handout for anthropology. In short, the LibGuide reinforces library services and resources covered during the lecture and serves as an important online instructional tool for students to consult.

10. Observations on information literacy's impact on collection management and cataloging

Liaisons at Wake Forest University are encouraged to plan, communicate, promote, and deliver a wide variety of library services to their assigned departments. The willingness of the cataloger to assume more library instruction duties clearly fits with the library's new mission for each liaison to offer a more comprehensive liaison program with their respective academic departments. Based on these authors' experiences and observations, the IL component of a liaison program supports and enhances other liaison duties such as collection management.

10.1. Collection management

It is important to note that the cataloger's overall experiences with library instruction provided valuable insight into her other liaison responsibilities. Strong evidence in the literature focusing on academic library liaisons suggests that there are new roles for librarians to explore with their assigned departments. For example, Feldmann (2006) and Glynn and Wu (2003) argue that liaisons need to take a more proactive role in providing research assistance, keeping abreast of new informational formats and trends in their assigned disciplines, and in collaborating with faculty to design more effective IL classes. Additionally, the cataloger has found collection development meetings and communication to be more informative to both faculty and liaison if specific examples can be cited pertaining to difficulties seen and encountered by students during the research process. With better faculty/liaison communication, liaisons will become more knowledgeable about user needs and departmental initiatives including proposed changes to the curriculum, faculty research interests, and strategic plans. By becoming more aware of the department's culture and instructional program, librarians can gain valuable insight about departmental needs which will help them to identify materials that will support the research and teaching mission of the department (Sutton & Jacoby, 2008).

Due to the recession and other budgetary issues, academic libraries have less money to spend on library materials. Liaisons who participate in library instruction and personal research sessions are more familiar with their user populations. As mentioned in Section 7.2, the cataloger discovered that the library contained few books on hijras after meeting with two individual students about this topic during personal research sessions. While compiling the customized guides of selected resources for the upper-level ethnographic methods class, the cataloger/Anthropology liaison gained insight into the strengths and weaknesses of the library's monographic collection. In searching the catalog and WorldCat respectively, she discovered missing or lost books in the library's collection that would have potentially benefited students' ethnographic research and books not owned by the library that would add scholarly value to the library's collection and could potentially benefit current and future student researchers. With this knowledge, the liaison was able to compile a list of titles to purchase or replace those missing or lost which will improve the collection.

This kind of information is valuable to liaisons enabling them to make more informed and wise decisions regarding the selection and purchasing of materials. Furthermore, as liaisons develop a variety of proactive and marketing strategies with their users, they can become "part of the research process further upstream, where research begins" (Bracke, Hérubel & Ward, 2010). Through this ongoing process of acquiring new teaching skills and becoming more involved in the research process with the anthropology students and faculty, the cataloger is more cognizant of the relationship between IL and collection management and how they complement each other in her liaison role at Wake Forest University.

10.2. Cataloging

Resource Services at Wake Forest University has undergone significant changes in the last few years. This is due in part to a number of organizational changes within the library as well as overall emerging technological trends. As a result, many of the daily routines of the cataloger have changed. While she is still responsible for original cataloging of all non-print materials and electronic theses and dissertations for which there are no records in OCLC, reorganization of staff and reassignment of duties in Resource Services has freed up some of her time to become more involved in other liaison duties such as instruction.

As noted earlier, over the last few years, the cataloger has provided a number of services to her department; however, one of the main duties missing in her outreach services was teaching. In reaching out and partnering with the reference librarian, the cataloger developed additional instructional competencies which allowed her to assume a more active role in providing this important service to the Anthropology Department. As she became more involved in the teaching aspect, the cataloger realized that her cataloging knowledge and expertise informs and enhances library instruction to students, and library instruction to students informs as well as enhances her cataloging of materials.

Having catalogers to teach online catalog searching and interpreting skills allow them to share their vast knowledge and technical cataloging expertise to student researchers as well as their fellow reference and instruction librarian colleagues. Classroom teaching gives catalogers the opportunity to view the data they enter and how it appears to the public. In some cases, a cataloger may be "able to spot problems in a record that a patron is viewing" (Folsom, 2000). Teaching also enhances a cataloger's perspective by providing them with insight on how data is used and manipulated by all of the library's stakeholders (i.e. librarians, faculty and students). These face-to-face interactions with the stakeholders may also lend itself to new ideas for collaborating with a library's systems administration team to create and develop applications for a more useful next-gen catalog for all library patrons. With the forthcoming implementation of a new cataloging standard, RDA (Resource Description and Access), it will be imperative for catalogers to take the lead in instructing students and fellow librarians about changes in cataloging records such as the clustering of information concerning authors and their works. Catalogs will be able to display relationships between a title's

various editions, translations, abridgements, and physical formats. Users will be more informed about a work's numerous variations. RDA will become a valuable tool for researchers especially those who are seeking a particular version of a work. Catalogers will need to take a role instructing researchers on how to accurately interpret and make sense of the extensive information displayed in RDA cataloging records.

11. Opportunities abound when librarians from different teams combine talents to deliver instruction

Reference librarians and catalogers play critical roles in the organizational structure of the library. The nature of each person's work offers an excellent opportunity for catalogers and reference librarians to combine their expertise and coteach individual IL and credit classes. Each person in this cooperative teaching partnership drew heavily upon her individual professional skills and expertise when planning and teaching the classes.

Coteaching has benefits for librarians as individuals, the library, and the university. It is a win-win situation for everyone. If the roles and responsibilities of each instructor are clarified at the beginning, instructors may be able to pick and choose specific subject and technical areas to teach. From the instructors' standpoint, each instructor can focus on a particular aspect where she has a particular expertise or possesses a strong skill. Students may find the presentation more interesting when two people deliver the information. One advantage of team teaching is that the students are able to have multiple contacts for additional assistance after they leave the classroom. If one librarian is not available to conduct a personal research session, the other librarian can usually meet with the student.

The library and the university also benefit from these types of relationships. Due to the willingness of the cataloger to take the initiative in developing teaching competencies, she is now another instructor that can assist in teaching the LIB 210 class as well as conducting personal research sessions and IL classes to anthropology students. Both the reference librarian and the cataloger have a deeper understanding and appreciation of how their instructional activities support and enhance their abilities to perform collection management responsibilities for their respective departments. Furthermore, through this collaborative, proactive process to develop effective instructional strategies, the organization will benefit from these collective professional experiences. Along the way, significant changes will occur in the workplace as employees work together to "sustain effective individual and group performance" (Metz, 2010) goals.

12. Maximizing the collaborative experience

Continuous learning is an important aspect of a professional position, and self-development is critical to the performance of every individual in an organization. Many librarians (either new hires or seasoned veterans) are focused on learning new job-related skills for job enrichment and career advancement. Based on these authors' personal experiences, it is possible to reinvent oneself to assume new job responsibilities. The cataloger gained confidence in teaching IL classes, and the reference librarian gained insightful knowledge about mentoring and coaching a colleague, which will assist her in her new role as Chair of the Mentoring Committee.

Our collaborative teaching adventure works well for us. We like to view this relationship as two colleagues coming together, collaborating on a mutual goal and having fun in the process. Looking back on this adventure, we learned several things from our collaborative experience. Here are some tips to keep in mind in forming a cross-team partnership.

- Identify what is important both professionally and personally. Determine what it will take to achieve your goal. What resources will you need to accomplish it? What is the time frame? Will you require the assistance of another person in the organization?
- Take the initiative. Find a potential collaborator whose skill set and interests will enhance your work.
- Formulate a plan of action. After identifying a partner or coach, each person should clarify what she hopes to learn from the partnership. With your partner, prioritize the goals/tasks into manageable steps. At first, these may be "baby" steps, but eventually with the support of your partner they will morph into larger victories.
- Focus and avoid distractions. During the planning process, block out time that you will need for the project. We used our online calendars to schedule blocks of time and scheduled other rooms in the library (not our offices) for meeting places.
- Divide and conquer. Divide up responsibilities. Hopefully, responsibilities can be divided up based on each person's expertise. If not, negotiate this upfront and don't be afraid to step out of your comfort zone. Especially when coteaching, make sure that roles and responsibilities of each instructor are clearly understood before the class starts.
- Evaluate. Take time to evaluate the effectiveness of the instruction. Students' feedback provided a lot of constructive ideas and suggestions for improvement. Although this one is more difficult, be sure to offer feedback to your partner. Try to schedule a few moments after the presentation to discuss each instructor's impressions of the presentation.
- Be flexible. Don't be so organized and rigid that you cannot be supportive and open to new ideas from your partner. As the senior person in the partnership, avoid being overbearing and a "control" freak. Also be respectful of each person's comfort level in performing any new task.
- Respect and trust. Create an atmosphere where each person feels comfortable discussing any frustrations or fears about any upcoming job-related assignments. If conflict arises during the partnership, take a proactive approach and deal with the situation immediately.

- Teamwork fosters greater cooperation. The old adage "two heads are better than one" sums up our coteaching experience. Teaming up with other individuals either in your department or across another team promotes a deeper understanding of each person's unique contribution to the larger organization.
- Maintain a positive outlook and have fun: It is easy to get discouraged when you feel overwhelmed about beginning a new job-related task or tackling a new professional goal. Say these words "We can do this" and reward yourself when you and your partner succeed.

13. Conclusion

Our coteaching experience has created "new opportunities for collaboration and new ideas for improving services" (Gregory, Weber & Dippie, 2008). The partnership has opened up other scholarly and creative possibilities for us to consider that we never imagined. We firmly believe that collaboration with other colleagues is an effective strategy in today's work environment. We recognize that major changes will be required in our respective positions to meet future job-related goals and expectations and that there will always be new interests and challenges for us to explore. Furthermore, our cross-team endeavor opens the door for librarians in various positions in the library to identify mutual interests and to collaborate on projects that will enhance services for our students, faculty and staff.

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The study of library use and document gathering behavior: A survey of geomatics faculty at Wuhan University, China

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ABSTRACT

This study is to understand the professional document gathering behavior and the use of the Information Technology Library at Wuhan University. The library conducted a survey in 2009 and seventy-eight geomatics faculty participated in this investigation via email to examine what kinds of professional materials they currently use to support teaching and research, how they seek and acquire these documents, and which library services they use most on campus. Questionnaire responses have been tabulated to make the answers clearer and show the results more intuitively. Some incentives were offered to stimulate faculty participation. The survey disclosed many informative responses and also indicated that the library was still the major document gathering source; the faculty more likely used library electronic resources and rarely used other library resources or services; journals and international conference proceedings were the favorite materials for teaching and research. Some ranking lists with reference value were also provided, such as the most widely used foreign journals and international proceedings, and the most familiar academic institutions, publishers and university directories. The study pointed out that the library could develop appropriate collections and services to meet the faculty needs with the implication of the survey.

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1. Background

Wuhan University Information Technology School is formally known as Wuhan Technical University of Surveying and Mapping. Established in 1956, it used to be the largest education base for geomatics in Asia with the most disciplines of surveying and cartography in the world, and the most excellent geomatics faculty in Asia.

The library was built at the same time when the university established, and renamed Wuhan University Information Technology Library (ITL) in 2000. It is located on the south foot of the hill, in the scenic Luojia Mountain area with 68,361 square feet. There are more than 500,000 volume books, 5000 journal titles, and 100,000 sheets of various scale relief maps and remote sensing image photos (Wuhan University Information Technology Library, 2010) in its collections. The ITL regards the geomatics document collections as its main development direction all along and holds the most complete geomatics document collections in China. Its most characteristic resources include geomatics foreign periodicals, international conference proceedings, various scale relief maps and remote sensing image photographs. The foreign periodical collection has more than 2700 international periodical titles, including the world's earliest German professional journal Zeitschrift für Vermessungswesen collected entirely from the first volume in 1873 to current ones.

The Teacher Reading Room is in the Information Technology Library. As its name shows, it mainly serves professors on campus. There are many reserve materials in the reading room, such as international journals, thematic maps and reference books. These materials have played an important role in teaching and research. In the past, when professors talked about teaching and research

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on campus, they would definitely mention the library. However, with the development of technology, more document formats appear and the Internet becomes the major access mode. Professors can easily obtain materials needed online without visiting the library. With less users' physical contacts, the library appears less important than before. Based on the usage of the Teacher Reading Room in the ITL, it shows that the number of faculty members using the library has dramatically declined in recent years. Table 1 is the number of faculty readers in the Teacher Reading Room from 2001 to 2007. Apparently, the faculty reader number dropped from 3390 in 2001 to 269 in 2007, which means 90% reduction of library use in the past 7 years. Therefore, the Teacher Reading Room was renamed Reserve Reading Room in the ITL in 2008.

Upon such unexpected change, the ITL has to redesign its service module to meet the demand of teaching and research. A subject work group has been formed. Each subject librarian offers services on assigned subject field with expert knowledge to strengthen the communication between the library and faculty.

In the previous study (Gao and Yu, 2005), authors demonstrated what kinds of materials the faculty used in their research and teaching through analyzing citation in faculty publications, but did not discuss how geomatics faculty sought and obtained professional documents they needed. It is necessary for the library to further investigate how the faculty users obtain professional documents for their teaching and research. It is also helpful to better understand pros and cons of library services and improve the quality of programs and services to meet faculty needs. This paper is to continue studying the information needs and information seeking behavior of geomatics faculty via a designed survey. Through this study, the Information Technology Library will enhance collection development and design programs and services to better serve geomatics faculty.

2. Literature review

In order to provide adequate academic resources and design effective services for researchers, librarians have to understand professional information seeking behavior and how they use libraries. A number of studies have been done to explore this field. In a study, Chern Li Liew and Siong Ngor Ng (2006) investigated the information seeking behavior of fourteen ethnomusicologists in New Zealand via interviews. This research focused on what information ethnomusicologists sought, the sources and services they used, and the barriers they faced in information seeking and use. Many recommendations were presented for collection development and service design that will meet the information needs of ethnomusicologists (Liew and Ng, 2006). One of the suggestions was that libraries should also look into collaboration across departments to purchase foreign resources and costly materials, and provide the access to the resources difficult to obtain through sharing the cost. Lotta Haglund and Per Olsson (2008) understood the information needs of young researchers at three universities by observations and shorter interviews. The authors claimed that researchers preferably used their networks to perform simple, aimless and unstructured searches to access information. As the saying goes "It is only librarians that love to search, everyone else wants to find." They suggested that libraries should take researcher behavior into their consideration when designing services (Haglund and Olsson, 2008). The author also suggested that librarians should leave the library building and start working in the research environment, as well as putting some thoughts into the fact that using library was considered complicated, but using Google was easy. Pali Kuruppu and Anne Marie Gruber (2006) interviewed groups of researchers to study their information seeking behaviors in the agricultural and biological science, and reinforced the findings with a survey of University of Arkansas. They found that most researchers preferred to obtain articles electronically, but they were also concerned that most of the older literature was not available online (Kuruppu and Gruber, 2006). Rowlands and Nicholas (2008) thought that academic libraries were spending a big portion of their budget on electronic resources, and libraries needed to ensure proper use of resources to justify the costs. In this study, some survey questions were sent to all members of University College London by email. The authors also discussed some of the practical implications of these findings for librarians (Rowlands and Nicholas, 2008). The implication of multivariate data analysis stated that book discovery was very highly structured with gender, subject discipline, and academic status offering powerful predictors of certain underlying behavioral strategies. A model of book discovery strategies was also developed and used to help segment the survey population into those with high or low levels of dependence on formal library systems or non-library-based solutions.

There are some studies focused on the analysis of information seeking behavior of college students, which provide the evidence of information sharing and different perceptions of library services in the academic environment. Ethelene Whitmire (2001) examined the library use patterns of undergraduates via questionnaire and other forms. The study consisted of several surveys. One survey, the College Student Experiences Questionnaire (CSEQ), supplied the information about academic library experiences of undergraduates. Another survey from the National Center on Postsecondary Teaching, Learning, and Assessment (NCTLA) provided information about the undergraduates' background characteristics. Kathy Fescemyer (2000) studied information seeking behavior of undergraduate geographic students by analyzing citation. Baruchson-Arbib and Shor (2002) investigated how Israeli college students used electronic resources by questionnaire. From 2007 to 2009, Iris Chai, Zhixian Yi and Hur-Li Lee respectively explored undergraduates' information seeking behavior and library use by interviews, questionnaires and emails (Chai, 2007; Yi, 2007; Lee, 2008).

Table 1
Faculty reader no. in the Teacher Reading Room.

Year	2001	2002	2003	2004	2005	2006	2007
Faculty no.	3390	2700	1007	913	686	316	269

Some recent studies also indicate the interest in library use and information seeking behavior. Monica Vezzosi (2009) made in-depth semi-structured interviews to explore what kinds of resources students use, and research strategies they adopt in Italy. The result indicated that doctoral students heavily relied on the Internet for their research work; they appreciated simple and easy research tools; their use of the library was limited to a few services, such as document delivery and interlibrary loan (Vezzosi, 2009). Asunka et al. (2009) examined the results of usability analysis of usage logs on the Teachers College Library website. The article reported that the large academic library catalog was the most frequently used resource on the website. Most patrons visited the library website purposefully to seek scholarly materials and ERIC was the most popular database accessed through the site. The authors concluded that academic libraries should invest huge sums of money to develop or purchase electronic products (Asunka et al., 2009). Maria Pinto et al. (2010) took 1 year to explore the extent of service quality at Spanish science and technology academic libraries based on the expectations and perceptions of their users—faculty and researchers. The authors analyzed users' information behavior with the designed BiQual tool to reveal specific users' needs, such as the greater importance of electronic collections and improved electronic access (Pinto et al., 2010).

There are fewer studies only focused on faculty members in a certain key subjects to investigate professional information seeking behavior and library use. For instance, Hannah Francis (2005) analyzed the information seeking behavior of social science faculty at the University of the West Indies at St. Augustine. A questionnaire consisting of twenty questions was sent through the campus mail system to full-time social science faculty to collect data on information seeking behavior of social scientists. Only twenty-six respondents returned the questionnaire. The responses indicated that there was strong reliance on textbooks for teaching activities, and the university was primarily an undergraduate institution. Social scientists relied on journal literature to support their research and current awareness activities. The majority of social scientists depended on the library's copy for both current and retrospective information. More than half of the social scientists expressed a preference for access to electronic journals (Francis, 2005).

In comparison to the earlier researches, the study on geomatics has not been disclosed in recent years. Specially, as a library preserving the largest geomatics collection in China, it is significantly important to be able to give full play to its strengths and face challenges academic libraries confront in the digital age through innovation and reformation. This study is to further investigate how geomatics faculty use the library and gather documents to meet their teaching and research needs, as well as assist the library to design academic services and programs and improve the collection development policy.

3. Methodology

Survey has been a dominant means of investigation in most human science areas. None of other methods examined accounts for such a high percentage of studies. The research of library user information seeking behavior is more so. However, as a research strategy, the survey approach contains a variety of methods of data collection, such as individual interviews by phone or in person, group interviews, and the increasing used online surveys (Case, 2002). Among these investigation methods, the authors thought that electronic version of questionnaires by email was more replicable and convenient in this study. The data from respondents were more precise, flexible and easily processed. It facilitated the faculty to participate the investigation conveniently and flexibly although it might take a while to get responses.

Question statements and questionnaire form are essential to the survey. Questions must be minutely schemed and tightly surrounded the research theme. They need to be stated tersely, and contain a certain depth and extent of distribution of information seeking behavior and library use. The questionnaire form should be quantified as much as possible. Therefore, in this survey, most possible answers were listed for each question and tabulated for clarity. Respondents just needed to distribute percent in each answer column. Additional columns in each table were used to fill unlisted answers. Based on this design, a primary questionnaire was made and sent to geomatics faculty for feedback. After revision, the final questionnaire consisted of more than 90% of quantitative questions. It only took respondents 20 minutes to fill out the electronic questionnaire. An example of the questionnaire is shown in Appendix A.

The representative sample was chosen from the Remote Sensing Information Engineering School (RSIES), Surveying and Mapping School (SMS) and the State Photogrammetry and Remote Sensing Laboratory (SPRSL), which offer most of geomatics majors and programs at Wuhan University. Two hundred faculty from the two schools and the laboratory participated in the survey via email. Each respondent received two free full-text articles selected from the title lists of current international geomatics proceedings and foreign English books as incentives. A telephone reminder was sent out if a faculty member did not respond to the survey in the first two weeks. The follow-up phone calls gained an additional 13% response rate, which also brought the total response rate up to 39%.

In the survey, the authors found that professional websites and electronic databases were the most popular sources for geomatics faculty, but not further investigated. Therefore, a continuing study on electronic resources will be followed.

4. Data and analysis

In this survey, two hundred faculty members received the questionnaire and seventy-eight responded to the survey via email, including thirty faculty from RSIES, twenty from SMS and twenty-six from SPRSL. This produced a total response rate of 39%. Table 2 lists the demographics of the survey participants. A total of 84.6% of the faculty were male and 15.4% were female. A total of 53.8% of the respondents held the rank of professor, 35.9% were associate professors, and 10.3% were lecturers. A total of 41% of the respondents were younger than 40 years, 51.3% were between 40 and 50 years, and 7.7% were older than 50.

Table 2
Basic information of faculty participants.

Type of faculty		Faculty no.	%
School	RSIES	30	38.5
	SMS	22	28.2
	SPRSL	26	33.3
Gender	Male	66	84.6
	Female	12	15.4
Academic positions	Professor	42	53.8
	Associate professor	28	35.9
	Lecturer	8	10.3
Age	Younger than 40	32	41
	40–50	40	51.3
	Older than 50	6	7.7

Based on the data in Table 2, most respondents were associate or full professors under 50 years. A total of 80% of the respondents were male; 38.5% were from RSIES, 28.2% came from SMS and 33.3% were SPRSL faculty. These participants were the backbone of the two schools and the laboratory (the Remote Sensing Information Engineering School, the Surveying and Mapping School and the State Photogrammetry and Remote Sensing Laboratory). They were on the frontline of teaching and research. Their information needs, to some extent, represented the voices of teaching and research in geomatics, which coincided with the survey purpose and the target population. Therefore, the reference value obtained from the survey sample was relatively representative.

4.1. Method of gathering documents

The study of the method of gathering documents was to understand how the faculty access professional literature and gather documents for teaching and research. This also provided firsthand information for collection development and procurement. Table 3 lists the main methods that the faculty used to gather professional documents.

The result showed that the proportion of library use was significantly higher than other methods with averaging 52%, Google Scholar and Scirus went to the next place with 21%, and other methods were less than 10%. Although the faculty seldom visited the library, the library print and electronic collections were still the major sources for teaching and research. In other words, the library still played an important role in teaching and research. This result gave us great comfort. Google Scholar and Scirus were two easily used scholarly search engines. The geomatics faculty liked the two search engines because they could rapidly get a lot of relevant full-text (sometimes partial full-text) articles. The use of reference room of school took 7%. At Wuhan University, each school or department has its own reference room and holds the collection of correlative major materials used only by the faculty and students at that school. The data also indicated that the library and scholarly search engines were the two essential means for the faculty to gather professional documents. Search engines provided fast and wide range of resources, but not carefully selected, while the library offered more authoritative, in-depth academic resources. Therefore, facing the rapid change of information technology, the library should consolidate its advantages in academic collections and information services. Meanwhile, the 21st century search engine should offer the similar "one-stop" retrieval platform to let users easily and efficiently find the information.

4.2. Use of library resources and services

The investigation of the use of library resources and services will help librarians understand how the faculty use the library so that the ITL can adjust and improve its services. Queried with the number of time spent using library, the faculty were asked to give the number of times per week using electronic resources; the number of times per month using circulation and reading services; and the number of times per year using reference services, document delivery, interlibrary loan, and other services respectively.

Table 3
Method of gathering documents.

Method	Average percent	Highest percent	Lowest percent
Library	52%	90%	10%
Google Scholar and Scirus	21%	50%	5%
Reference room of school	6%	30%	0
Academic conference	6%	30%	0
Academic institution	5%	50%	0
Personal collection	4%	50%	0
Correlative university	3%	20%	0
Publisher	2%	20%	0
Other	1%	20%	0
Total	100%		

Table 4
Frequency of library use.

Library resource and service	Average use frequency	Highest use frequency	Lowest use frequency
Electronic resources	7.13 times/week	25 times/week	1 time/week
Circulation and reading services	0.89 times/month	5 times/month	0 time/month
Reference service	1.42 times/year	12 times/year	0 time/year
Document delivery	1.03 times/year	10 times/year	0 time/year
Interlibrary loan	0.87 times/year	10 times/year	0 time/year
Other	0.84 times/year	20 times/year	0 time/year

Table 4 lists the frequency that the faculty used library resources and services. The most frequently used service was electronic resources, about once per day on average, twenty-five times per week at most and once per week at least. This indicated that the faculty favored library electronic resources.

Circulation and reading services went to the second place, nearly once per month on average and five times a month at most. It signified that the faculty seldom visited the library physically, but used library electronic resources remotely. There were some aspects that caused the less use of circulation and reading services. Some faculty complained that the original editions of English books were not updated timely and most English books in the reading room were published in 1990s. The faculty suggested that the ITL should consider acquiring important international conference proceedings as much as possible and taking the faculty's advices when the library purchases foreign books. Therefore, the ITL librarians should pay close attention on how to improve the collection quality of English books.

Other types of library resources and services were rarely used as well, only once per year on average, ten times per year at most, some were never used. Queried about improving the library work, several faculty answered that the library should increase the efficiency of document delivery and interlibrary loan service.

4.3. Type of material used

Queried about the material types used in teaching and research, the faculty were asked to distribute a percentage according to the listed type. Unlisted types were all classified as "other." Table 5 shows the inquisitional results of professional material types used by the faculty. Journals were most frequently used; monographs and conference proceedings went second with the similar distribution. Through further analysis, we believed that the use frequency of conference proceedings was higher than that of monographs in fact because there were more monographs than conference proceedings in the ITL. It was quite different from the research in 2005, where the faculty used more monographs than conference proceedings before 2003 (30–40% of materials used were monographs, 5–10% were conference proceedings) (Gao and Yu, 2005). It also indicated that the ITL should purchase more conference proceedings to keep faculty members informed with the latest research and developing activities.

It was interesting to see that the needs for special materials were slightly different among the faculty of three schools. The faculty of the State Photogrammetry and Remote Sensing Laboratory (SPRSL) preferred conference proceedings; three faculty of the school assigned the highest use frequency (40%) and the average use frequency given by the same school faculty was also higher than the percentage assigned by the other two school faculty in the survey. Since the SPRSL is the only school recruiting graduate students, it has more demands on research; conference proceedings usually collect most recent international research and development and bring the faculty solid information without attending conferences. While the SPRSL and RSIES faculty were the major users of maps and images, the SMS faculty rarely used this type of materials. The RSIES faculty also used the national and industrial standards, but the use frequency was low. This survey results indicated that the library should better communicate with the faculty of three schools and understand their needs for special materials, and take account of these factors in collection development.

Table 5
Frequency of material type used.

Type of material used	Average percent	Highest percent	Lowest percent
Journals	46.9%	80%	25%
Monographs	16.7%	40%	0%
Conference proceedings	15.2%	40%	0%
Internet	8.5%	55%	0%
Theses/dissertations	6.5%	20%	0%
Maps and images	2.9%	21%	0%
National/ industrial standards	2%	10%	0%
Other	1.3%	30%	0%
Total	100%		

Table 6
Language distribution of journals used.

Language	Chinese	English	German	Russian	Japanese	Other	Total
Average percentage	45%	52%	1.5%	1.5%	0%	0%	100%
Highest percentage	100%	100%	5%	5%	0%	0%	
Lowest percentage	0%	0%	0%	0%	0%	0%	

Table 7
Language distribution of monographs used.

Language	Chinese	English	German	Russian	Japanese	Other	Total
Average percentage	62%	34%	2%	2%	0%	0%	100%
Highest percentage	100%	100%	5%	10%	0%	0%	
Lowest percentage	0%	0%	0%	0%	0%	0%	

4.4. Language and edition of materials used

Tables 6 and 7 show how the faculty choose journals and books in different languages. Chinese and English were mainly used languages, but were used differently. The geomatics faculty preferred English journals and Chinese monographs. As the result of timely releasing the latest international research achievements, English journals were their favorite publications. In the two tables it also indicated that German and Russian were hardly used and Japanese and other languages were not used at all. This result did not change too much compared to the early research (Gao and Yu, 2005). But the ITL subscribed six types of print Japanese journals, which accounted for 7% of total foreign journals. It also further proved the necessity of adjusting the procurement of Japanese journals in collection development.

Table 8 reflects the preference for types of electronic and print materials. A total of 66% of the faculty liked online journals and 60% favored electronic conference proceedings; the two materials accounted for more than 90%. There was no difference in using electronic or print books. The authors thought that electronic editions of materials used were more popular because of the prompt and easy access. The ITL should collect journals and conference proceedings on CD-ROM.

4.5. Most familiar English journals and international proceedings

In the questions about the use of journals or proceedings, the faculty were asked to write more than two types of the most familiar English journals and international proceedings in the questionnaire. The authors also investigated materials the faculty mentioned more than five times to evaluate user satisfaction. The responses are listed in Tables 9 and 10.

Table 8
Frequency of electronic and print materials used.

Material type	Electronic	Print
Journal	66	2
Conference proceedings	60	4
Monograph	36	32

Table 9
Most familiar English journal.

Rank	English journal title	Time mentioned	Print	Electronic
1	International Journal of Geographical Information Science	30	Y	Y
2	Photogrammetric Engineering and Remote Sensing	17	Y	N
3	Journal of Geodesy	12	N	Y
4	Journal of Geophysical Research	9	Y	Y
5	Remote Sensing of Environment	8	Y	Y
5	Geoscience and Remote Sensing	8	Y	Y
7	Geophysical Research Letters	7	Y	N
8	ISPRS Journal of Photogrammetry and Remote Sensing	6	Y	Y
8	Photogrammetric Record	6	Y	Y
10	Geoinformatics	5	N	N
10	GPS Solution	5	Y	Y
10	International Journal of Remote Sensing	5	Y	Y

Table 10
Most familiar international conference proceedings.

Rank	Conference proceedings name	Time mentioned	Holding status
1	ISPRS (International Society for Photogrammetry and Remote Sensing)	32	Complete
2	SPIE (The International Society For Optical Engineering)	19	Fairly complete
3	ASPRS (American Society for Photogrammetry and Remote Sensing)	14	Complete
4	IEEE (Institute of Electrical and Electronics Engineers)	11	Fairly complete
5	ACM (Association for Computing Machinery)	8	Complete
6	ION (Institute of Navigation)	6	Partially complete

In Table 9, the authors found that Photogrammetric Engineering and Remote Sensing was ranked in the second place, and Geophysical Research Letters in the seventh place—the ITL did not actually collect the two titles in electronic format; Geoinformatics which ranked tenth was a new journal founded in 2007 and was not collected at all. Thus the library decided to include the three titles in the foreign journal acquisition next year.

Table 10 demonstrates the mentioned time of the first six proceedings titles. These proceedings were mainly available in print or on CD-ROM in the ITL. Most faculty were satisfied with the collection of international proceedings. It was worth noting that the ranked sixth ION (Institute of Navigation) proceedings actually contained three individual proceedings: NTM (National Technical Meeting of the Institute of Navigation), AM (Annual Meeting of the Institute of Navigation) and GNSS (ION GNSS International Technical Meeting of the Satellite Division of the Institute of Navigation), but the ITL only collected GNSS proceedings. Through further investigation, the authors found that some faculty had requested the two proceedings (NTM, AM) several times before. Therefore, the ITL should purchase the full ION proceedings including supplements to provide convenient access for users.

4.6. Most familiar correlative foreign institutions

In the past, the ITL purchased materials selected from bookseller lists. In order to know the sources that the faculty acquire geomatics materials from, the survey asked the faculty to write more than two most familiar foreign publishers, academic organizations and geomatics universities respectively. These institutions mentioned more than five times are listed in Tables 11–13. This information can expand acquisition channels and help the library to procure geomatics materials.

4.7. Advices on library work

In order to gather feedback on library programs and services, the faculty were given an opportunity to make suggestions on the improvement of library work in the end of the questionnaire. The authors organized these data in Table 14. It was worth pointing out that more than five faculty members were concerned about the slow updates on English books, low efficiency of document delivery, and lack of open concurrent database seats. The results have brought librarians' attention. Consequently, the ITL adopted the survey suggestions and provided literature search workshop for students of the Surveying and Mapping School to enhance their information literacy and writing skills in 2010 fall semester.

Table 11
Most familiar foreign publisher.

Rank	Publisher name	Time mentioned
1	Springer	33
2	Elsevier	14
3	IEEE	9
4	Taylor and Francis	8
5	ACM	5

Table 12
Most familiar foreign geomatics academic organization.

Rank	Academic organization name	Time mentioned
1	ISPRS (International Society for Photogrammetry and Remote Sensing)	14
2	NCGIA (The National Center for Geographic Information and Analysis)	12
3	NASA (National Aeronautics and Space Administration)	9
4	ASPRS (American Society for Photogrammetry and Remote Sensing)	7
5	IAG (International Association of Geodesy)	6
6	ICA (International Council on Archives)	6
7	ITC (International Institute for Aerospace Survey and Earth Sciences)	5
8	SPIE (The International Society For Optical Engineering)	5

Table 13
Most familiar foreign geomatics university.

Rank	University name	Time mentioned
1	University of California	15
2	Universität Stuttgart	11
3	ETH Zürich	8
4	California State University	7
5	MIT	7
6	University of Calgary	6
7	Ohio State University	5

Table 14
Advices on library work.

No.	Category	Advice
1	Database collection	Increase database concurrent seats to offer more off-campus access to common databases. Update the library mirror site to decrease information lag on the site. Provide more and latest full-text electronic journal articles in SCI. Offer subject search in database finder.
2	Foreign book and proceedings collection	Slow updates on original English books. Purchase more foreign classical English textbooks in 3S (Remote Sensing, Geographic Information System and Global Positioning System) and the latest international conference proceedings of ASPRS, ISPRS and ION on CD-ROM. Solicit faculty's feedback on collection development.
3	Reader services	Improve the efficiency of document delivery. Provide workshops of literature search, thesis writing for undergraduate and post graduate students.

5. Conclusion and implication

With the advent of digital information age, all kinds of electronic equipment, digital products, and communication modes are emerging endlessly. Print documents are not the only carrier of knowledge, and libraries are no longer the only place for acquiring knowledge. People are more likely used to the convenient online access to all kinds of information. The traditional physical library and print materials are suffering with unprecedented challenges, namely facing the danger of gradual loss of readers. University libraries are no exception.

This investigation was done in the scenario of serious drop in the number of faculty readers in the ITL. The purpose is to understand the decline cause, strengthen communication between the library and faculty, know the faculty's need and the method of acquiring materials for teaching and research, and solicit feedback from the faculty on resources and services and advices on library work. The survey results could provide reliable and important information for the library to strengthen literature resources construction and effectively improve public service quality.

The study discovered that 52% of the faculty used the ITL to collect documents and 21% preferred Google Scholar and Scirus; the faculty accessed library electronic resources 7 times per week on average and rarely used other library resources or services and 47% of the faculty regarded journals as the most common material for teaching and research. It also showed that the faculty preferred electronic journals in English, print monographs in Chinese, and English international conference proceedings on CD-ROM. The survey yielded the ranking lists of the most widely used foreign journals, international proceedings, and well-known academic institutions, publishers, and universities. Comparing the results with library collections, the authors found the ITL did not hold electronic versions of the three of top ten journals and collected neither electronic nor print journal Geoinformatics. Proceedings collection was incomplete and only had three of the top six proceedings. The ITL decided to purchase these titles in fall 2010.

Finally, the survey generated some important and interesting implications for improving library services. Although the faculty rarely visited the ITL, the library was still the main place where they collected professional literature. In order to provide 24/7 easy access to electronic literature for the faculty, the library should purchase more geomatics databases, increase database concurrent seats, and develop an easy and convenient search engine. Engineering and technology are ever-changing disciplines. Compared to monographs, journals and conference proceedings are the primary resources of research and development in the field; thus the ITL should pay more attention to collecting journals and proceedings to meet the need for professional literature. When purchasing foreign resources, the acquisition department should also keep good communication among the faculty, foreign academic institutions, publishers and booksellers. The procurement of foreign language books can be in a timely manner with an efficient document delivery and communication system. It was further proved that the ITL need to reduce the purchase of Japanese journals, which conformed to the result of former citation analysis of geomatic faculty and graduate students' work.

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Appendix A

The questionnaire of library use and document gathering (for faculty)

(Please fill the boxes marked in red)

Table 1: Investigation of Library Use

Library Resources and Services	Use Frequency
Electronic resources	No./week
Circulation and reading services	No./month
Reference service	No./year
Document delivery	No./year
Interlibrary loan	No./year
Other	No./year

Table 2: Method of Gathering Professional Document

Method	Percent
Library	%
Google Scholar and Scirus Scholar	%
Reference Room of School	%
Academic Conference	%
Academic Institution	%
Personal Collection	%
Correlative University	%
Publisher	%
Another type (don't contained above)	%
Other	%
Total	100%

Table 3:Frequency of Type of Material Used

Type of Material Used	Percent
Journal	%
Monograph	%
Conference proceedings	%
Internet	%
Thesis/Dissertation	%
Map and image	%
The national industry standard	%
Another type (don't contained above)	%
Other	%
Total	100%

Table 4:Language Distribution of Journals Used

Language	Chinese	English	German	Russian	Japanese	Other	Total
Percentage	%	%	%	%	%	%	100%

The most favorite form of journalis: electronic journal **or** print journal
(please delete the form which you don't like)
Please write down more than two English journals which you are most familiar with

( )

Table 5: Language Distribution of Monographs Used

Language	Chinese	English	German	Russian	Japanese	Other	Total
Percentage	%	%	%	%	%	%	100%

The most favorite form of monograph is: electronic monograph or print monograph (please delete the form which you don't like)

The most favorite form of international proceedings is: electronic edition or print edition (please delete the form which you don't like)

Please write down more than two English monographs which you are most familiar with
( )

Please write down more than two international proceedings which you are most familiar with
( )

Please write down more than two foreign geomatics academic organizations which you are most familiar with ( )

Please write down more than two foreign publishers which you are most familiar with
( )

Please write down more than two foreign geomatics universities which you are most familiar with
( )

Finally please give some improvement advices on the library work:
( )

Thanks for your support!

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American Indian Civil War treaties: The instruments formed by the Confederate States of America in Indian Territory

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ABSTRACT

The creation of nine treaties between the Confederate States of America (CSA) and the tribes residing in Indian Territory in 1861 formed a significant historical perspective to the understanding of the relationships between governments and indigenous peoples of the United States. This research note describes a Web page – "So Long as Grass Shall Grow and Water Run: The Treaties Formed By the Confederate States of America and the Tribes in Indian Territory, 1861" – that provides access to paired CSA *Statutes at Large* page images and their text for each of these instruments.

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1. Introduction

Since the reign of Ramesses II, Pharaoh of Egypt, and his alliance with the Hittites in 1259 BC, the universe of diplomacy between sovereigns has been documented through the implementation of treaties. In this ancient instance, aspects of nonaggression, peace, and extradition were negotiated (Menu, 1998, pp. 96–97) and published on a silver tablet in Akkadian, the useful cuneiform language (Marcus, 1978). Models of international relations such as this prevailed and slowly evolved into concepts of international law, beginning with the termination of the Thirty Years' War under the conditions of the *Treaty of Osnabrück* (Parry, 1969, pp. 198–269). The rules and protocols applied in this transaction of 1648 formed the basis for subsequent global agreements over the next three and a half centuries. Aust noted that if "law derives its strength from acceptance by society that its rules are binding, not from its enforceability, then international law is law. The *raison d'être* of international law is that relations between states should be governed by common principles and rules" (Aust, 2005, pp. 2–3).

Pushing the bounds of exploration, however, led to a variety of processes to rationalize such behavior. Whenever there was a need for permission, say, to initiate an invasion of Ireland, or to allocate title and a trading monopoly in Africa, or to partition the geography of the New World, papal bulls were employed to expedite such activities and to endow an official air to them (Williams, 1983). Thus, in the New World, the range of new endeavors invoked the creation of its own suite of treaties, conventions, and agreements to formulate a new order.

This was particularly the case for dealings with the indigenous peoples of North America. Indeed, as the result of a series of transactions made prior to American Independence, and then completed during several decades thereafter, 375 treaties acknowledged by the United States Department of State now relay the history of such interactions between the tribes and the newcomers. Charles J. Kappler, in the second volume of his *Indian Affairs: Laws and Treaties* compiled at the request of Congress (Kappler, 1904), assembled most of these contracts carried out with the tribes. These materials have been digitized by the Oklahoma State University Library Electronic Publishing Center (OSU). The OSU project began modestly, by targeting "all of the

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pre-removal treaties of the Five Tribes: Cherokee, Chickasaw, Choctaw, Creek, and Seminole. These tribes were chosen because of their significance to the state of Oklahoma," but the remaining instruments and Kappler volumes were digitized subsequently (Holcombe, 2000, and Bernholz & Holcombe, 2005).

Two early American documents from 1798 and 1805, however, were not included in Kappler's second volume of recognized treaty texts, nor were those seven contracts formed by the British government during its tenure. A supplemental Web site now furnishes access to all 375 American Indian treaties (Bernholz, Pylik Zillig, Weakly, & Bajaber, 2006; http://earlytreaties.unl.edu/index.html).

2. American Civil War treaties created by the Confederate States of America

Following their removal to Indian Territory in the first few decades of the nineteenth century, the Five Civilized Tribes held almost all of the land that makes up today's Oklahoma (The map on p. 70 of Prucha's *Atlas* volume [1990] shows this area). At the onset of the Civil War, the CSA sent Albert Pike to negotiate and secure treaties with these tribes. Pike offered a vast array of opportunities in order to attract and seal the allegiance of these groups, including proposals of annuities based on previous negotiations with the federal government, of statehood for the Territory under the government of the CSA, and of representation in the CSA's Congress. At the end of the conflict, the federal government initiated a new series of punitive treaties with the Five Civilized Tribes that simultaneously reduced their land holdings and opened up the Territory to receive other tribes that were displaced under the same forced relocation policies.

The nine instruments created by Pike during July, August, and October of 1861 are now offered in digital format at a new Web site entitled "So Long as Grass Shall Grow and Water Run: The Treaties Formed By the Confederate States of America and the Tribes in Indian Territory, 1861." The site's URL is http://csaindiantreaties.unl.edu. *The Statutes at Large of the Provisional Government of the Confederate States of America* (Matthews, 1864/1988) now serves as the primary source for these items, and this publication has been digitized by the University of North Carolina as part of their Web project *Documenting the American South* (http://docsouth.unc.edu/index.html). The treaties' texts appear in a segment devoted to a "List of the Public Acts and Resolutions of the Provisional Congress, and of the Proclamations and Treaties Contained in this Volume." This particular content was copied from the *American South* site and then rechecked against that found in the paper version of the *Statutes*. Images of the appropriate pages were taken from this latter resource as well. The resulting *Statutes* pairs – image plus text – for each of the nine instruments form the presentation for these materials.

3. Research applications and conclusions

These digitized texts occupy a single file that furnishes the entire range of 123 pages for the American Indian treaties in the CSA *Statutes*. Browser text searching of any of the nine documents may therefore be initiated. As an example, many of the tribes in Indian Territory had a tradition of slavery and shared this history with the South. The CSA treaties provided specific articles validating this activity, so the use of the browser search term *slavery* within the treaty file will yield the seven occurrences contained in these instruments. Similarly, federal annuities were a major interest to these groups and the CSA assured the tribes that this income stream would be maintained under their administration. Searching these documents with the pseudo-term *annuit* will identify all forty-two relevant instances of *annuity* and *annuities*. Required military service was also a provision, and the employment of the term *troop* will unveil twenty-seven examples of *troops*, but these results include the identification of *Texan troops* that were to be withdrawn as a condition in the two transactions with the Comanches.

A major reason for offering this suite of CSA treaties was to present the remaining instruments that are missing from a complete collection of all such recognized American Indian transactions (Deloria & DeMallie, 1999). The fact that the federal government cited these accords in their new post-Civil War dealings with the Indian Territory tribes is an implicit statement of their validity as a full-fledged binding contract. These outcomes may be unfamiliar, but they served as the foundation for a new and different federal policy within Indian Territory after the War. Their importance as historical exemplars endures.

The CSA document group thus supplements the materials available at the American Indian Treaties Portal of the University of Nebraska-Lincoln's Center for Digital Research in the Humanities. This assembly now includes those noted early American and British treaties; a biography of Charles J. Kappler, the compiler of *Indian Affairs: Laws and Treaties*; an analysis of the full lexicon for all 375 recognized treaties; and access to published articles on those treaties cited before a variety of federal and state courts (see http://treatiesportal.unl.edu/).

Finally, the opportunity to provide these nine CSA treaties complements the initiative founded upon OSU's bold development of the *Indian Affairs: Laws and Treaties* site a decade and a half ago, an endeavor that commenced by focusing on the pre-removal instruments of the Five Civilized Tribes. This group was pivotal in the evolution of Indian Territory into the state of Oklahoma, and it was enmeshed in these dialogues with the CSA during, and with the federal government both before and after, the Civil War. This path – through eight decades of negotiations with one government or another – offers a significant chapter in American history and mirrors how this nation went about setting its course following Independence.

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Citation analysis of doctoral dissertations at IIMA: A review of the local use of journals

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ABSTRACT

This study analyzes the citations of the 49 doctoral dissertations submitted at the Indian Institute of Management, Ahmedabad, during the period 2004 to 2009. The study reveals that journals are the most cited sources, and based on the pattern of citations, a local ranking list of journals has been developed. The study applies Bradford's law to identify the groups of journals differentiated by their use. Results indicated that the top 48 journals that were ranked among the 30 most used journals contributed to more than 55% of the journal citations.

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1. Introduction

The global marketplace, with respect to periodicals, was expected to be turbulent with the financial crisis having had a major effect on library funding. The Periodical Survey 2010 by Henderson and Bosch (2010) projected an overall increase of price of periodicals to be 8%. The problem of increasing prices was only part of the story, with other issues like budget cuts, big deal (where a large number of journals/books are offered as a package) of e-journals, mergers and acquisitions of publishers, usage issues, and so on contributing to the robustness of the challenge of managing periodical collections in a library. The dynamics in the marketplace also gave rise to many mergers, acquisitions, and consolidations in the journal publishing sector. Some popular instances in this regard were related to Wiley, Blackwell, Springer, Kluwer, Elsevier, Taylor & Francis, etc. These developments along with financial cuts made the libraries stare at unprecedented problems in operating smoothly. Henderson also states that "the year 2009 will be remembered as one of angst, with the economy dominating news around the world. Few libraries were immune to the extraordinary financial pressures. Concern persists that even deeper budget cuts will come when federal stimulus money expires in the 2012 budget cycle" (Henderson and Bosch, 2010). These challenges in library environment had quite easily become representative for libraries all over the world and not restricted to Western markets only.

In this background, libraries were forced to establish priorities in their journal collection acquisition and maintenance practices and policies. In the process, libraries used different approaches that included review of the usage of subscribed content and seeking feedback through user surveys to indicate the need for continuing or renewing the current subscriptions. One of the methods that were adopted in the first category, i.e., studying the usage of journals, included studying the publications of its researchers and then analyzing the research output (publications) in relation to journals used for the research output. In line with these developments, libraries used different tools and techniques that included tagging journals, review of circulation statistics of the bound volumes, administering questionnaire to its users, review of usage statistics of online papers, study of usage of current

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journals, and so on. Studying the impact factor of journals and citation analysis of articles in the journals were also adopted to evaluate the collection as well as to strengthen the journal collection.

It is in this perspective that citation analysis of scholarly publications published by faculty and research scholars can be useful to better understand the usage of library resources at the local level. Zipp (1996) found that citation analysis of the theses and dissertations is a reliable "surrogate of faculty publication citations in evaluation of the research portion of library collection use because the research interest of graduate students often reflect the interest of the faculty." Citation analysis of PhD thesis can be helpful to identify core journals in the library collection, rank journals based on citation count, and those which receive the highest citation can be adjudged as highly used and ranked accordingly. Citation analysis will also help to analyze the local usage of subscribed journals in addition to identifying the journals that are not subscribed to by the library. This type of study could easily justify or also develop a usage focused journal collection acquisition policy.

This study aims to identify the core journals in the library from analyzing the citations in the doctoral dissertations submitted to the Indian Institute of Management, Ahmedabad, during the 6-year period, i.e., 2004 to 2009. One of the oldest b-schools in India, the Indian Institute of Management, Ahmedabad (IIMA), was established in 1961 in academic collaboration with the Harvard Business School, USA. Today, with more than two hundred thousand applicants seeking admission every year, it is arguably the toughest b-school in the world to get into (The Economist, 2010). Various b-school surveys have ranked IIMA as the top b-school in India, quite consistently for many years.

2. Objectives of the study

In addition to reviewing the journal usage by doctoral students at the Institute, the other objectives of the study are as follows:

1. To identify the information resource types most used by the doctoral students at the Institute
2. To identify the journals most cited by doctoral students at the Institute
3. To identify the group of core journals with respect to the use by doctoral students at the Institute

3. Literature review

In academic and research libraries, journal collection forms a critical and important part of the library collection. Echoing this concern and importance, in library and information science research literature, we find that studies evaluating journal collections are increasing. With the commonly witnessed challenges of the budget cuts and increasing journal prices, these studies have been valuable for library administrators. There are a good number of studies that have been conducted to understand the use and value of subscribed journals. From these studies, over the years, it can be easily said that citation analysis has been used as one of the major tools in assessing the impact of journals.

Probably one of the first studies of this nature was by Gross and Gross (1927) which investigated into the methods to build a core collection of journals for a college library. They studied the references in the articles published in the 1926 volume of The Journal of the American Chemical Society. In a similar study, Allen (1929) analyzed the citations taken from eight mathematics journals from different countries, to make it a global study, and ranked the journals by the number of citations.

Garfield (1972) felt that citation analysis would be very useful in managing the journal collection in a library. The data that Garfield used were references published during the last quarter of 1969 in the 2200 journals then covered by the Science Citation Index. Based on this analysis, Garfield suggests that citation analysis could to be used as a tool to derive a basis for cost benefit analysis in developing the core journal collection.

Zipp (1996) found that citation analysis of thesis and dissertations is a reliable "surrogate for faculty publication citations in evaluations of the research portion of library collection use because the research interests of graduate students often reflect the interests of their faculty advisors." Johnson (1996) analyzed the citations of 122 publications by the faculty of statistics department of Texas Tech University and applied it to the collection development process of the University library. Edwards (1999) investigated the pattern of citations in 256 dissertations submitted in the masters and doctoral programs in field of polymer science and polymer engineering between 1990 and 1996.

One of the interesting studies in this area was by Altmann and Gorman (1999) in which they compare the use of impact factor of journals as a substitute for local use studies in determining the core collection of journals in a library. The findings of the study were consistent with the view that local use studies are more effective in gauging the needs of library users and probably the impact factor of journals can be used in conjunction with the local citation studies in making local decisions to manage journal collections.

Citation analysis has been used in different studies focusing on subject areas like chemistry by Gooden (2001); physics by Pillai (2007) and Hadagali, Gururaj, Kumbar, and Benehal (2009); and animal sciences by Olatokun and Makinde (2009).

Identifying a core journal collection in agricultural research in Tanzania, Dulle, Lwehabura, Matovelo, and Mulimila (2004) studied 295 masters level (MSc) dissertations and 21 doctoral dissertations (PhD) that were submitted to Sokoine University of Agriculture between 1989 and 1999, in addition to 309 conference proceedings published during the same period. The study found that journals were again the most cited of the sources and suggested that citation analysis could be used as a tool to build the core collection of journals in libraries.

Sinn (2005) undertook the citation analysis of the dissertations submitted during 1980–2002 in mathematics and statistics at Ohio University and suggested that the libraries can use the results of this study to protect a larger core journal collection for

mathematics. Leiding (2005) analyzed the citations of 101 theses of undergraduate and graduate students between the years 1993 and 2005 in about 22 subject areas and found increasing proportion of journals being cited with time in science and social science subjects.

Price (2007) analyzed the citations of faculty publications and found that context-specific identification of the most important journals provides a far more useful understanding than an estimate of the number of subject-related journals in a collection. The sample used by Price for his analysis consisted of citations from the latest 2 publications of 8 faculty members and the total citations counted to 861. In this study, local citation analysis has been used as a tool by Price to derive an understanding of the most used journals in recent research activity of faculty.

In the Indian context, a study in the subject area of physics was undertaken by Pillai (2007) in which he analyzed the citations of 71 doctoral theses submitted to the Indian Institute of Science during 2004 to 2008. Similarly, Chikate and Patil (2008) analyzed the citations of 27 library and information science theses that were submitted to Pune University during 1982 to 2005. The studies attempted to identify the most cited information sources; identify the top journals in the subject; and identify the age, language, and country wise distribution of the citations.

Cox (2008) ascertained that citation analysis would be useful for making evidence based dental library collection development and facilitate management decision making based on a study that included examining 129 theses of graduate dental students of the Indiana University, USA.

Gao, Yu, and Luo (2009) studied the citations of 56 theses submitted to Wuhan University, China, in 2005, and these theses were on 4 different subjects that included library and information science, biology, photogrammetry and remote sensing, and stomatology. In the study, Gao analyzed the characteristics of literature cited, language influence, and most frequently cited journals in the specific fields.

The findings in the literature reviewed is much evidence to the fact that citation analysis can be a very important tool to investigate user information needs and determine the potential use of individual journal titles for a specific subject field. It is also evident from the earlier studies that citation analysis is an effective tool to facilitate decision making in building and managing local journal collections. Citation analysis not only facilitates the understanding of which journals are to be ranked highly in a specific domain but also helps in understanding the local use of journals. In times of financial constraints and also when we need to justify each penny spent on journals, citation analysis could help us in determining the most useful journals by local users and those titles which are not used frequently could be dropped from the core journal collection of a library.

4. Methodology

The institutional repository of IIMA was searched to prepare the list of all doctoral dissertations submitted by students of the Fellow Programme in Management during the period of 2004 to 2009. It was found that 49 dissertations were submitted during the period. This was checked with the records of the Fellow Programme office and this confirmed the total number of submissions. The 6-year period (from the latest) was selected in order to keep the sample at a size that was manageable but also substantial and current. Since earlier studies also indicated that use of journals by doctoral students would also indicate the preferences of faculty in using journals, it was assumed that this sample could be representative of the local use of journals in the library.

Each of the dissertations was selected for data entry of citations used in the dissertation. MS Excel worksheets were used for data entry of the citations from all dissertations. One worksheet was used for each dissertation.

Citations were entered in each row with columns indicating the title of the source (in case of journals) and type of the source. Journal titles were standardized and journal name changes were also accounted for. For standardizing the information on type of source, the citations from each dissertation were tagged, based on the form of information source, and they included journal articles, book and book chapters, reports (all types), working papers, conference and workshop papers, newspapers and magazines, thesis and dissertations, websites, cases, and "others." The "others" category included monographs, databases, and dictionaries.

The total citations entered in the worksheet were 6462 from 49 dissertations. These worksheets now contained data that would be researched further as shown in the following section.

5. Findings and analysis

In light of the objectives listed out for this study and the data collected on citations from 49 dissertations, the analysis and findings that followed were as follows.

5.1. Year wise distribution of dissertations

It was found that there were 49 dissertations submitted during 2004–2009 at the Institute in the Fellow Programme in Management. The distribution of dissertations across years is reflected in Table 1, as shown below.

The data for year wise distribution of dissertations indicated an average of 8 dissertations over a 6-year period of 2004 to 2009, with the years 2005 and 2008 being the highest with 12 dissertations each and the lowest productive year in terms of dissertations was 2006 with only 3 submissions.

Table 1
Year wise distribution of dissertations.

Year of submission	2004	2005	2006	2007	2008	2009	Total
Thesis submitted	6	12	3	6	12	10	49

5.2. Types of information sources cited

The sample for the study consisted of 49 dissertations submitted during the period of 2004 to 2009. The dissertations had together cited 6462 earlier works. Data in the worksheets, for all dissertations, related to type of sources were copied into a single worksheet. The new worksheet had type of sources in different columns and dissertations in various rows. The results of the analysis of these data related to various types of information sources cited are shown in Table 2.

It was quite evident that the most cited sources were journals with an overwhelming majority of almost 66%. The most cited category of journals included 4319 citations and was followed by book and book chapters with 1313 citations (20%); reports (all reports) were 463 (7%), working papers were cited 173 times (3%), and conference and workshops were cited 98 times (more than 1%). The other sources that were cited like thesis and dissertations, newspaper and magazine, cases, and others were cited less than 1% of the total citations.

This finding that journals were the most cited of all the information sources was in tune with most of the earlier studies like Zipp (1996); Edwards (1999); Dulle et al. (2004); Sinn (2005); Price (2007); Pillai (2007); Cox (2008); Chikate and Patil (2008); Olatokun and Makinde (2009); and Gao et al. (2009).

5.3. Journal citations

The data revealed that there were in all 793 journal titles from which 4319 citations were cited in the 49 dissertations. The top 30 ranked journals based on number of citations are listed in Table 3 below.

Table 3 revealed that 48 journals were cited 17 times or more and they were placed among the top 30 ranks based on the citations from 49 doctoral dissertations over a period of 2004 to 2009. The top journals that were cited more than 100 times were the Journal of Applied Psychology (cited 209 times), followed by the Academy of Management Journal (175 citations), Management Science (164 citations), Academy of Management Review (142), Strategic Management Journal (121), and Administrative Science Quarterly (109). In this list, the Economic and Political Weekly was the sole title published from India and was cited 88 times.

The top 30 ranks were allotted to 48 journals and together they were cited 2399 times in the dissertations submitted during the period 2004–2009. Interestingly, this implied that the top 48 journals provided for more than 55% of the 4319 citations from 793 journal titles.

5.4. Bradford's law of scattering

One of the most widely applied tools to study the productivity of journals in bibliometric studies has been the Bradford's law. Bradford's law was formulated by Samuel Bradford in 1934 while studying the distribution of scientific literature. In the study, he found an inverse relation between the number of articles published in a subject area and the number of journals in which they were published.

When groups or zones of journals are created with equal number of citations after ranking the journals by their productivity, one can easily see the pattern in the formation of these groups called as Bradford groups or zones. The pattern is that the first zone or the core zone will have a small number of journals, and each zone, as they move from the nucleus, will have an increasing

Table 2
Citation by type of information source cited.

Type of information sources	2004	2005	2006	2007	2008	2009	Citations (total)	Citations (%)
Journal articles	474	903	219	654	1004	1065	4319	65.37
Book and book chapters	151	272	108	103	346	333	1313	19.87
Reports(all types including survey)	44	179	68	11	51	110	463	7.01
Working papers	21	60	21	18	21	32	173	2.62
Conferences/workshops	15	34	8	8	12	21	98	1.48
Newspapers and magazines	16	19	8	4	10	4	61	0.92
Websites	1	0	21		21	16	59	0.89
Thesis and dissertations	5	9	7	6	9	17	53	0.80
Cases	6	8	8	3	9	10	44	0.67
Others	3	3		2		16	24	0.36
Total	736	1487	468	809	1483	1624	6607	100

Table 3
The most cited journals.

Rank	Journal title	No. of citations
1	Journal of Applied Psychology	209
2	Academy of Management Journal	175
3	Management Science	164
4	Academy of Management Review	142
5	Strategic Management Journal	121
6	Administrative Science Quarterly	109
7	Journal of Management	92
7	Operations Research	92
8	Economic and Political Weekly	88
8	Journal of Organizational Behavior	88
9	Energy Policy	76
10	Journal of Personality and Social Psychology	69
11	European Journal of Operational Research	55
12	Organization Science	53
13	Journal of Marketing	52
14	Journal of Marketing Research	46
15	Journal of Management Studies	42
16	Human Relations	39
17	Harvard Business Review	38
18	Interfaces	33
18	Psychological Bulletin	33
19	Research in Organizational Behavior	32
20	American Economic Review	30
21	Journal of Vocational Behavior	28
22	Organizational Behavior and Human Decision Processes	27
22	World Development	27
23	Journal of Finance	25
24	Personnel Psychology	24
25	Human Resource Management Review	23
26	Computers and Operations Research	22
26	Journal of Consumer Research	22
27	Academy of Management Executive (now Academy of Management Perspectives)	21
27	American Sociological Review	21
28	American Psychologist	20
28	Econometrica	20
28	Energy Journal	20
28	Journal of Future Markets	20
28	Journal of Operational Research Society	20
28	Marketing Science	20
29	International Journal of Human Resource Management	19
29	Journal of Political Economy	19
29	Journal of Retailing	19
29	MIS Quarterly	19
30	American Journal of Sociology	17
30	California Management Review	17
30	Journal of Business Research	17
30	Organization Studies	17
30	Research Policy	17

number of journals. The first zone is called the nucleus zone which is highly productive, the second zone is moderately productive, and the third zone is the peripheral zone or low productive zone.

Patra and Chand (2005) used Bradford's law to identify the core journals of biotechnology in India. Other studies in this area have been by Donohue (1972), Yeon-Kyoung (1994), Heine (1998), and Von Ungern-Sternberg (2000). Another interesting study has been by Nicolaisen and Hjørland (2007), who have critically reviewed the application of the Bradford's law.

Table 4 provides the data of journals ranked by citations and is used for application of Bradford's law to identify the three zones of journals.

Firstly, it is necessary to calculate the Bradford's constant "k" that will be the multiplier to calculate the increasing number of journals for each zone. Using the formulation of Egghe (1986, 1990), Egghe and Rousseau (1990), and Andres (2009) to calculate k:

$$k = (e^{\gamma} \times Y_m)^{1/p}$$

where γ is Euler's number ($\gamma = 0.5772$), Y_m is the highest number of citations by the journal of rank one, and p is the number of zones or Bradford groups. From Table 4,

$$Y_m = 209 \text{ and } p = 3$$

Table 4
Distribution of journals.

Rank	No. of Journals	Cumulative no. of journals	No. of citations	Total no. of citations	Cumulative no. of citations	Log *N*	Percentage of citations	Percentage of total journals
1	1	1	209	209	209	0.0000	4.84	0.13
2	1	2	175	175	384	0.6931	8.89	0.25
3	1	3	164	164	548	1.0986	12.69	0.38
4	1	4	142	142	690	1.3862	15.98	0.50
5	1	5	121	121	811	1.6094	18.78	0.63
6	1	6	109	109	920	1.7917	21.30	0.76
7	2	8	92	184	1104	2.0794	25.56	1.01
8	2	10	88	176	1280	2.3025	29.64	1.26
9	1	11	76	76	1356	2.3978	31.40	1.39
10	1	12	69	69	1425	2.4849	32.99	1.51
11	1	13	55	55	1480	2.5649	34.27	1.64
12	1	14	53	53	1533	2.6390	35.49	1.77
13	1	15	52	52	1585	2.7080	36.70	1.89
14	1	16	46	46	1631	2.7725	37.76	2.02
15	1	17	42	42	1673	2.8332	38.74	2.14
16	1	18	39	39	1712	2.8903	39.64	2.27
17	1	19	38	38	1750	2.9444	40.52	2.40
18	2	21	33	66	1816	3.0445	42.05	2.65
19	1	22	32	32	1848	3.0910	42.79	2.77
20	1	23	30	30	1878	3.1354	43.48	2.90
21	1	24	28	28	1906	3.1780	44.13	3.03
22	2	26	27	54	1960	3.2580	45.38	3.28
23	1	27	25	25	1985	3.2958	45.96	3.40
24	1	28	24	24	2009	3.3322	46.52	3.53
25	1	29	23	23	2032	3.3672	47.05	3.66
26	2	31	22	44	2076	3.4339	48.07	3.91
27	2	33	21	42	2118	3.4965	49.04	4.16
28	6	39	20	120	2238	3.6635	51.82	4.92
29	4	43	19	76	2314	3.7612	53.58	5.42
30	5	48	17	85	2399	3.8712	55.55	6.05
31	3	51	16	48	2447	3.9318	56.66	6.43
32	2	53	15	30	2477	3.9702	57.35	6.68
33	4	57	14	56	2533	4.0430	58.65	7.19
34	4	61	13	52	2585	4.1108	59.85	7.69
35	5	66	12	60	2645	4.1896	61.24	8.32
36	6	72	11	66	2711	4.2766	62.77	9.08
37	11	83	10	110	2821	4.4188	65.32	10.47
38	7	90	9	63	2884	4.4998	66.77	11.35
39	14	104	8	112	2996	4.6443	69.37	13.11
40	18	122	7	126	3122	4.8040	72.29	15.38
41	21	143	6	126	3248	4.9628	75.20	18.03
42	21	164	5	105	3353	5.0998	77.63	20.68
43	39	203	4	156	3509	5.3132	81.25	25.60
44	54	257	3	162	3671	5.5490	85.00	32.41
45	112	369	2	224	3895	5.9107	90.18	46.53
46	424	793	1	424	4319	6.6758	100.00	100

Therefore, $k = (2.718^{0.5772} \times 209)^{1/3}$

$$k = (1.781 \times 209)^{1/3} = 7.19$$

Now, we can calculate the number of journals in each Bradford group or zone by finding the number of journals in the first Bradford group or the nucleus zone, r_0.

$$r_0 = \frac{T(k-1)}{(k^p-1)}$$

where T represents the total number of journals in the study, k is the Bradford's constant, and p is the number of Bradford's groups. For the data collected as Table 4, r_0 will be

$$r_0 = \frac{793(7.19-1)}{7.19^3-1} = 13.24.$$

Table 5
Bradford's groups and their number of journals.

Zones	No. of journals	No. of citations	k
Core zone	13	1480	
Zone 1	95	1544	7.30
Zone 2	684	1295	7.25

With the values of k and r_0, it is now possible to calculate the number of journals in other Bradford groups and they will be

$$r_0 = r_0 \times 1 = 13.24$$

$$r_1 = r_0 \times k = 95.19$$

$$r_2 = r_0 \times k^2 = 684.45$$

This theoretical distribution of Bradford's law makes it possible to test the exact fit of Bradford's law to the data collected in our study. Using this distribution, the number of citations can be calculated, as shown in Table 5.

Considering the exact number of citations, the Bradford's constant is also calculated and it is found that the values of k are very similar to the calculated values of k by the formula $k = (e^{Y} \times Y_m)^{1/p}$. This shows that the data fit into three group distribution.

To analyze the nature of distribution, further, as per the Bradford's law, we could plot a graph of the cumulative number of citations with the log of cumulative number of journals. As show in Fig. 1, the plot indicates that the least productive journals tend to be cited less number of times. The figure also indicates that there are lesser journals that are cited very high and there exist more numbers of journals that are cited least.

6. Conclusion

Citation analysis has been adopted by various researchers to different disciplines in finding out the highest used sources of citations and top ranked journals, analyzing the local use, facilitating decisions on journal collection development, and so on. Similarly, citation analysis of doctoral thesis and dissertations has an important role in analyzing the local use of journals and this study is an attempt in this direction. The results also indicate that the study of journals cited and application of Bradford's law is a useful exercise in understanding the needs of doctoral students. In the process of this kind of study, it can be said that this also is an initiative to understand the faculty needs and patterns in utilization of journals in the library as it is the faculty who act as guides and mentors for the doctoral students. The study clearly indicates that the core nucleus of the journals collection is small with a few journals and validates earlier research in this regard. It is also seen that the number of journals that are cited least are higher in terms of numbers, i.e., the largest chunk of journals about 424 have been cited only once.

Hence, it can be said that, in making decisions on building large journal collections, such studies can be useful in analyzing the utility of large collections of journals, especially in situations where financial resources are scarce. There are alternatives available to libraries, wherein individual papers are being purchased as against full subscriptions to journals on annual basis. It may be important to note that, before trying such alternatives, we should consider usage by all sections of users in addition to doctoral students, increase the time period covered in the study, and compare the journal usage statistics provided from publishers. The alternate use of such studies is to enhance understanding on local use and relate it to journal collections and also look at introducing new services around the most used journals and market the less utilized journals.

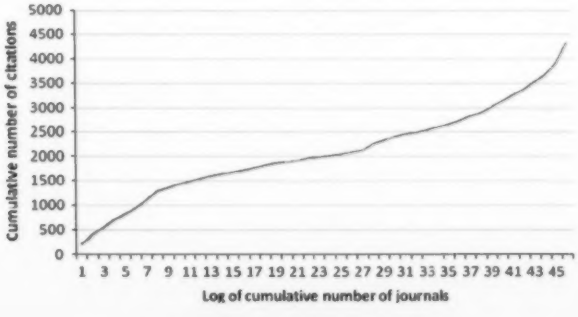

Fig. 1. Bradford plot of journal distribution.

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Reviews

Acquisitions in the Information Universe: Core Competencies and Ethical Practices
By Jesse Holden. London: Facet Publishing, 2010. 135 pp. £44.95 soft cover ISBN 9781856047395

Jesse Holden is Coordinator of Technical Services, Millersville University, Pennsylvania. The book is based on the author's long experience in dealing with best practices at work, as well as in the training and education of information professionals.

From the traditional item-driven process, library acquisitions is "increasingly involved with the provision of access to content in a variety of formats." In this sense, Holden provides deep insights about a conceptual approach to e-acquisitions in the book's five chapters: The New Information Universe, Spheres of Access, Routes to Access, Service and Feedback, Acquisitions in a New Paradigm. Each chapter has its own list of references, enabling further study and research. An experienced practitioner will find support for professional development in the appended list of resources dealing with conferences, courses, e-mail lists, as well serials and electronic resources. *Acquisitions in the New Information Universe* is a valuable supplement to many existing guides, including *Crash Course in Collection Development* by Wayne Disher (Westport, CT: Libraries Unlimited, 2008).

The book, however, falls short in one major sense. The subtitle, *Core Competencies and Ethical Practices*, is marginalized in this book. There is neither is a definition of these terms, nor any in-depth coverage of what, how, where, when or why which of these affect the new information universe. Incidentally, "core competencies" as a term finds no place in the index, whereas "ethical practices" does find a passing reference. Therefore, anyone looking for core competencies will have to read, for example, *Core Technology Competencies for Librarians and Library Staff* (New York, Neal-Schuman Publishers, 2009).

One strength of the book is in its approaches and strategies focused particularly on e-acquisitions. This is especially true in Chapter 11, which discusses the emerging sub-disciplines pr professional areas of acquisitions. This is also the case in the sections on acquisitions as a service and future trends of electronic texts. With this in mind, Holden is recommended for LIS students in particular, but acquisitions librarians will find it a good refresher on the theoretical concepts and practical concerns involved in managing the e-access environment.

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Developing an Outstanding Core Collection: A Guide for Libraries. 2nd ed.
By Carol Alabaster. Chicago: American Library Association, 2010. 191 pp. $60.00 ($54.00 ALA members) soft cover
ISBN 9780838910405

Contrary to what the potential reader might expect from the title, this book focuses exclusively on collection development in the public library setting. The author draws on her considerable experience, most recently as collection development coordinator at the Phoenix Public Library, to present all aspects of the process of developing fiction and non-fiction adult core collections. In developing a core collection the selector is "striving to find the best books available on a given topic or in a given genre." In multi-branch public library systems these titles would be purchased for all branches.

The author provides a useful outline of a core collection policy and a sample statement, but emphasizes that the criteria for determining titles to be included in the core must be made locally. She also provides a list of selection aids and describes how to use them when selecting titles for core collections. In the chapter on creating and maintaining core collections, the author covers methods of budgeting for these collections, how to acquire, process, and replace core collection titles, and the necessity of marketing core collections to the library's clientele. The author emphasizes the need to track and review titles in the core in her chapter on implementing the core collection.

This book includes an extensive annotated bibliography of print and electronic core selection resources, and in the last chapter the author presents examples of core lists along with the criteria and sources used to create them. Those who build and maintain public library collections will find this book useful.

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Functional Requirements for Authority Data: A Conceptual Model
Ed. by Glenn E. Patton. IFLA Working Group on Functional Requirements and Numbering of Authority Records, Final Report December 2008. IFLA Series on Bibliographic Control, 34. Munich: K.G. Saur, 2009. 101 pp. US$77.00 hard cover ISBN: 9783598242823

This is the final report of the IFLA Working Group on Functional Requirements and Numbering of Authority Records (FRANAR) in which they define the functional requirements of authority records as expansion and extension of the functional requirements of bibliographic records (FRBR). This conceptual model discusses only the name (person, family, and corporate body) and title entities as controlled access points; subject terms are not included. It provides a framework to analyze the kind of authority data that is required to support authority control and for sharing authority data internationally. The report contains diagrams showing the relationships between entities, entity definitions, attributes for each of the entities, authority relationships in the context of the model, and a mapping of attributes and relationships to user tasks (find, identify, contextualize, and justify) with a few examples for each. The editor provides references and an index, but no summary or conclusion.

This report is an essential tool for catalogers to understand the theoretical global ramifications of authority work and how controlled access terms will interact in the "FRBRization" of OPACs.

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Moving Your Library: Getting the Collection from Here to There
By Steven Carl Fortreide. Chicago: American Library Association, 2010. 192 pp. $70.00 soft cover ISBN 9780838909942

Fortriede, a professional move consultant, presents a very detailed planning and implementation guide in two parts—planning and moving. Like most librarians, I have moved collections within the same building and relocated small collections into new spaces. It was always a keep-it-simple, learn by your mistakes type of experience. Fortriede has moved entire university libraries, which would intimidate most librarians. He has distilled from his experiences what he has learned so that a novice mover does not make costly mistakes.

The most difficult part of moving any size collection is not the labor of moving, but the planning. Here is where most of your time will be spent wondering, "What am I forgetting?" Fortriede is so detailed in this section that you will know that nothing has been missed. More importantly, his suggestions on building morale for both for those involved in the move and those not involved but affected are simple and essential. Including a means of communication, newsletter or meetings, will assuage staff fears and identify any unresolved problems.

Mapping out the collection in the new location is a difficult challenge. The author provides detailed chapters on measuring the collection, planning growth space and even planning space to interfile collections. He has even been thoughtful enough to provide spreadsheets in the appendix. These tools help not only to make the task feasible, but also to insure there is less (or no) post-move adjusting.

Most of the book is common sense, but there are several aspects of working with contractors and safety issue that were surprising little "oh yeah" moments. Understanding that your timetable may not be yours, but rather set by when the library staff are allowed into the new space by the contractors. If contractors are not included in the original planning stage, your own timetable could be meaningless. Also, Fortriede makes a special point to mention what he calls acceptance of the building. This is the point in the move when the contractor deems the building has been accepted by the new owners as it is. Any problems with

the construction found after this point are not part of the original build contract, so it is important to clear up all issues prior to starting the move, or leaving room in the contract for fixes.

In our own library world, librarians like to keep everything ordered and running smoothly. A collection move of any size pushes us out of our comfort zone. Fortriede's book can help make the experience much less anxiety ridden. Purchasing it should be the first part of anyone's move.

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Next-Gen Library Catalogs
By Marshall Breeding. The Tech Set, 1. London: Facet Publishing, 2010. 127 pp. £34.95 soft cover ISBN 9781856047210

In the current web environment, with its increasingly rapid rate of change, libraries have found it difficult to keep up with the latest in web technologies that help their users locate and use the information resources that they need. In this first-rate primer on next-generation library catalog interfaces Marshall Breeding provides librarians with the information they need to select and implement such an interface. As Director for Innovative Technologies and Research for the Vanderbilt University Libraries, Breeding is well qualified to expound on this topic.

Next-Gen Library Catalogs is organized into six chapters addressing all aspects of the latest trends in catalog interface development. In the introduction Breeding makes the case for why libraries should consider implementing a new interface, contending that libraries have not kept pace with other web destinations on how they provide access to their collections. He points out that libraries need to provide better access to their suite of electronic resources, but that because of budget restraints, acquiring an entirely new system is often impossible. The next best solution is to purchase an interface that will work not only with the legacy integrated library system, but also with other library databases, such as the digital asset management system (e.g., CONTENTdm).

Breeding provides a thorough introduction to the features available in many of the next-generation interfaces, such as relevancy-ranked search results, faceted navigation, visually-enriched displays (e.g., cover images), search term recommendations, "more like this" recommendations, user-contributed reviews, tag clouds, and more. Profiles of many of the currently available next-generation interfaces are provided, including AquaBrowser, BiblioCommons, Encore, Endeca ProFind, LS2 PAC, Primo, SirsiDynix Enterprise, Summon, VuFind, and WorldCat Local. In subsequent chapters Breeding discusses planning and implementation, provides advice on how to market a new interface, shares tips for best practices, and makes suggestions for assessing the results of a new interface.

Overall, this is an excellent and timely introduction to a topic that is currently of great interest to many librarians. It would be a valuable addition to most working collections, and especially useful for those libraries considering the purchase of a new catalog interface.

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No Shelf Required: E-Books in Libraries
Ed. by Sue Polanka. Chicago: American Library Association, 2011. 182 pp. $60.00 ($54.00 ALA members) soft cover
ISBN 9780838910542

E-books form an increasingly important part of library collection development. While e-books have been available for more than 10 years, it is only in recent years that user preferences have begun to shift from print to e-books. Improved accessibility, functionality, portability and cost-effectiveness have led many users to incorporate e-books into their research, teaching, and leisure reading experiences. However, e-books can be complex and offer challenges for libraries, publishers, vendors, and ultimately the end-user.

This volume "offers readers an opportunity to explore the challenges that e-books bring to our libraries and our businesses." It is a very well-organized and well-edited volume of nine contributed papers offering librarian, publisher, and vendor perspectives on important e-book topics. All the papers are clearly written and provide the reader with essential information on e-books. The

editor points out that one can read the volume cover-to-cover or selectively read chapters that are of greater interest, much like a textbook or reference book.

The first chapter introduces the topic by discussing the history and evolution of e-books. This is followed by an interesting discussion on using e-books as a tool for student learning. Chapters that follow include discussions on acquisition, licensing, cataloging, integration, and marketing of e-books in school, public, and academic libraries. New models for selection and acquisition, such as patron-driven acquisition, pay-per-view, and e-preferred approval plans provide important insight into options available in the marketplace. Users now want not only 24/7 desktop access to e-content but also access via mobile devices such as e-book readers and smartphones. Interpretation of usage statistics can be confusing, and the author of this chapter assists readers in understanding usage reports and how to effectively interpret and use the data. Current standards, such as DOI (digital rights management) and ISBN, as well as newer standards, are discussed in the next chapter. The volume concludes with a discussion of the impact e-books will have on academic publishing. While some publishers have been reluctant to move to simultaneous publication of the print and e-version, publishers are now changing their business models due to increased demand for e-books and a decrease in demand for the print.

This volume provides comprehensive coverage of a challenging topic, e-book management. *No Shelf Required* is highly recommended and essential reading for librarians and staff in all types of libraries, publishers, vendors, and anyone else interested in learning more about e-books. This title is also available as an e-book. Although the book was written in the latter part of 2009, the content is still very timely. To supplement this volume, editor Polanka maintains a blog, also called *No Shelf Required*, at http://noshelfrequired.com/.

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GUIDELINES FOR AUTHORS: MANUSCRIPTS

Library Collections, Acquisitions, and Technical Services
Former title: *Library Acquisitions: Practice & Theory*
www.elsevier.com/locate/lcats

Aims and Scope

Library Collections, Acquisitions, and Technical Services provides a forum for the exchange of ideas and experiences among members of the library collection management, technical services, vendor, and publishing communities throughout the world. It is a comprehensive publication designed to bring together many of the specializations within the broad areas of library collection management and technical services including, but by no means limited to, acquisition of books and serials in academic, public, school, and special libraries; cataloging and authority control; outsourcing of technical services operations; electronic publications; gifts and exchanges; microforms and other nonprint media, such as electronic journals; document delivery; networking, resource sharing, and access; and pertinent library automation projects. In reflecting the broad, practical, and theoretical foundations of the discipline, *LCATS* publishes articles based on the practical work experiences of librarians, vendors, and publishers as well as research reports and papers reports and papers on theory.

Editorial Policy

The editors will be pleased to receive contributions from all parts of the world. Criterion for acceptance will be appropriateness to the field of the journal as described in the Aims and Scope, taking into account the merit of content and presentation. Papers must be neither previously published nor submitted elsewhere simultaneously.

The Review Section editor assigns and solicits reviews.

Letters to the Editor should not exceed 400 words in length and may be: (a) comments or criticisms of articles recently published in the journal; (b) preliminary announcements of original work of importance warranting immediate publication.

All new and revised manuscripts must be submitted through the *Library Collections, Acquisitions and Technical Services* online submission and review Web site (http://ees.elsevier.com/lcats). Authors are requested to submit the text, tables, and artwork in electronic form (e.g., Word or RTF format) to this address in appropriate files. In an accompanying letter, authors should state that the manuscript, or parts of it, have not been and will not be submitted elsewhere for publication. Submission items include a cover letter, reviewer recommendations, title page with author identifiers, manuscript without author identifiers, tables, figures, and author bios. Revised manuscripts should also be accompanied by a unique file (separate from the covering letter) with responses to reviewers' comments.

Manuscript Requirements

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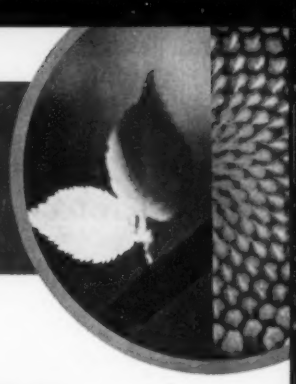

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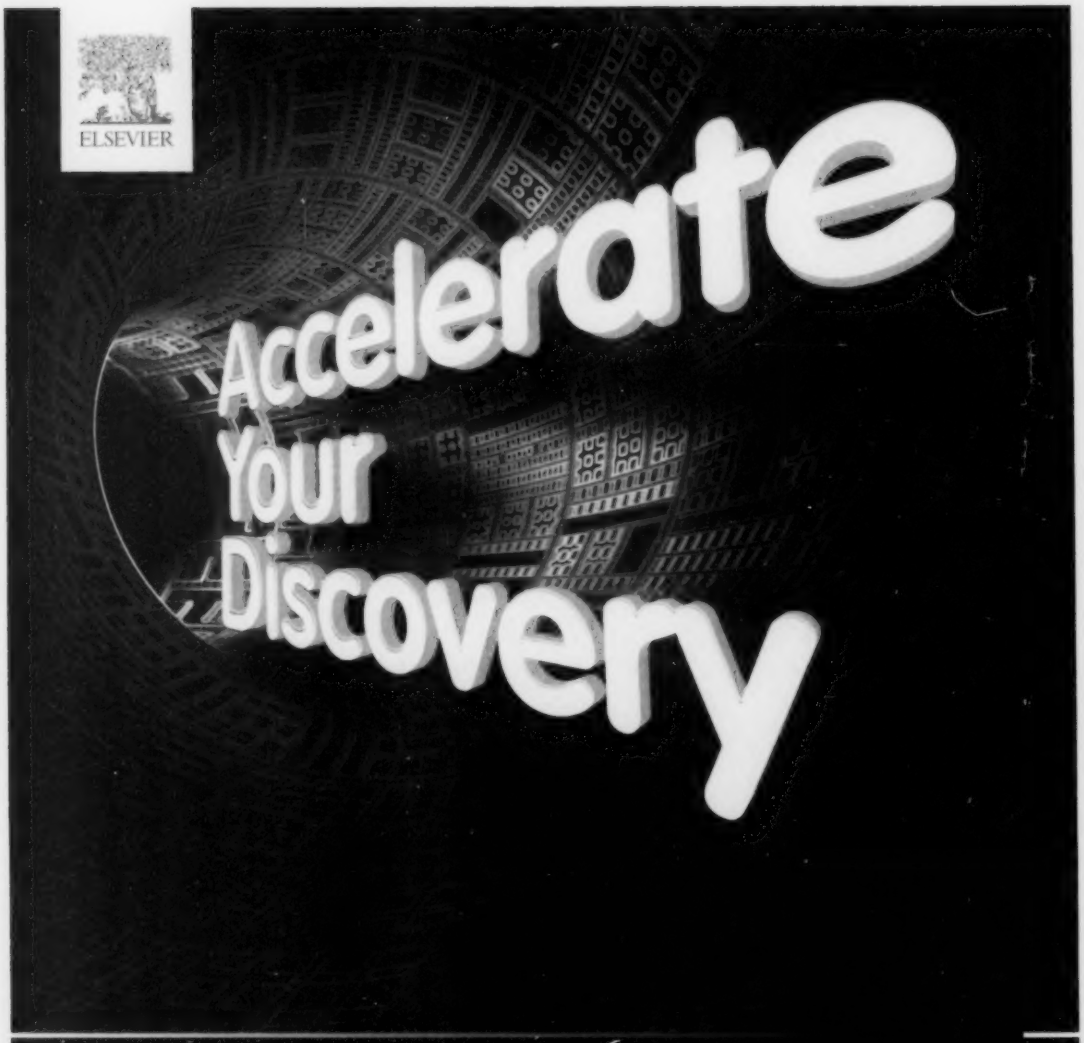

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